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## Fortnightly Review

### Bull on the Track

THE RECENT one-man filibuster in the United States Senate which prevented an avowed majority of that body from voting favorably upon the McCarran-Lea Air Carrier bill (S-2) reminds us of the story of the old bull that stood between the rails, defied a great locomotive, and stopped the train.

There he stood with great paunch, saggy knees, senility creeping upon him, shaking his shaggy head at a thing of progress. The old bull never knew that the engineer simply stopped the train to avoid a nasty mess on the front of the engine and right-of-way. A member of the crew with a red flag soon induced the pathetic creature to charge in another direction and the train was on its way, doing its part to build a great nation.

Aviation and scheduled air transportation development in the United States can be retarded very little by such a character as Senator McKellar. To him aviation means only air mail and he seems to resent the advance of passenger, express and freight carrying by air, just as the old bull resented the rails and iron horse on a range that had once been unbroken Buffalo grass.

It is true that the dull thud of hoofs as the Pony Express sped over the Buffalo grass in early days was a thrilling sound connected with a romantic mail service. Likewise, the piercing whine of the single engine of the open cockpit mail plane of ten years ago was a thrilling sound in the romance of mail carrying and air navigation.

But how absurd it would have been to retain the Pony Express so that the Post Office Department

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## McKellar Blusters and Fumes, Halts McCarran-Lea Air Bill

### P. O. Disapproves United-Western Air Sleeper Interchange Contract

In a sweeping 31 page decision released Saturday, August 28th, Post Office Solicitor Karl A. Crowley disapproved the leasing agreement entered into between United Air Lines and Western Air Express by which the two lines would interchange sleeper transport planes to provide through service between New York and Los Angeles via Salt Lake City. The denial was predicted by AMERICAN AVIATION in the August 15th issue.

While going to great lengths to prove that the proposed agreement was illegal and would amount to control of Western Air Express by United, Mr. Crowley apparently left the door open

for an agreement in revised form which would provide through service, for he added: "It is understood, of course, that this opinion applies only to the particular facts in this particular case and is not to be construed as a general ruling, that under no circumstances could a through sleeper service be provided where it is advantageous to the public or the Post Office Department and where such services do not conflict with the law. It is the policy of the Post Office Department to provide air mail and air transport services to serve the public convenience wherever possible and any or all proposals looking to an inter-

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### MOVE EASTWARD?

#### Industry Expects West Coast Companies to Open Eastern Assembly Units

A number of West Coast manufacturing companies are seriously considering establishing assembly plants in the East, according to reports. Such moves have been in the wind for some time, but several companies have gone so far as to start making definite plans.

It is known that part of the development plans for Bendix Airport, at Bendix, N. J. (formerly Teeterboro), call for erection of assembly plants at the new aviation city which Vincent Bendix is building. Another possible eastern center would be Bridgeport, Conn., where the Lockheed-owned Viking Company is located. Both places would be near the two major engine manufacturing companies, Curtiss-Wright, at Paterson, N. J., and Pratt & Whitney, at East Hartford, Conn.

While no plans are imminent, a general eastward trend on the part of some of the larger companies is definitely expected by eastern aviation interests within the next few years. The development would be in many ways similar to the establishment of automobile assembly plants in various parts of the country. Another angle is national defense. It is known that some military officials believe it a bad policy to have most of the big-production plants situated in one locale on the West Coast.

### United Director



Blank and Stoller Photo

Joseph P. Ripley, a potent financial factor in United Air Lines Transport Corp. of which he is a director.

### Windy Tennessean Wins One-Man Vote—Barrier; Manufacturers Happy as 1st Session Closes

THE first session of the 75th Congress came to a close August 21 with no major aviation legislation passed after a three-day bitter debate on the McCarran-Lea Air Carrier bill in the Senate during which Senator Kenneth McKellar, Democrat of Tennessee, succeeded in his lone effort to prevent the bill from coming to a vote.

The only legislation directly affecting air transportation to pass was the Alaska Air Mail Act providing for a surcharge on air mail in that Territory.

The Post Office failed to get passage in the Senate of the bill which would authorize an increase of air mail routes from 32,000 to 35,000 miles. Although it has additional funds for expansion, no more air mail routes can be let until the bill passes next session.

The Helium Act was made public law, although its provisions were not as satisfactory to advocates of dirigible service as the original bill would have made possible.

The aircraft manufacturing industry enjoyed an exceptionally good session. No unfavorable legislation was enacted and one bill, which would remove the 10% profit limitation on Navy contracts, moved forward favorably in hearings and stands in good stead for passage next session.

The Washington (D. C.) airport situation was left hanging in the air, although one bill was passed to provide certain enlargements of the present privately-owned airport. Presidential veto loomed as this issue went to press and even without the veto the bill accomplished virtually nothing.

The Haines bill providing for experimental air mail service in the stratosphere, with autogiros and other means, while passing the House, failed to come up in the Senate for a vote.

The airline safety bill advocated by the Air Line Pilots Association did not get consideration in either house.

Whether an extra session would be called for November was still a debatable question, but airline legislation becomes one of the first orders of business when Congress convenes. Since the next session is still part of the 75th Congress, all bills on the current calendar remain in place.

Passage of the McCarran-Lea Air

Carrier Act next session appears probable in view of the fact that the sole opposition to the bill in the Senate was Senator McKellar whose filibustering tactics prevented a vote being taken. The position of the bill in the House is expected to improve immeasurably by the time Congress convenes again.

Senator Pat McCarran, co-author of the bill, who directed a brilliant presentation of arguments for the bill on the floor of the Senate, was forced to go to a hospital in Washington after two days of debating. Having devoted untiring energies on a number of pieces of legislation during the strenuous session, the Senator was worn out from the strain and was badly in need of a rest. His condition was not serious.

#### Much Accomplished

Airline people generally, at least those who were genuinely interested in the bill's passage, felt that historic progress had been made toward straightening out the whole air transport situation during the session, not only by the hearings held earlier in the year but through the three-day debate in the Senate.

Rarely, however, has the Senate been treated to such a spectacle as the McCarran-Lea debate. If there was any opposition other than McKellar's, it was not in evidence. At least seventy-five Senators were committed favorably to the bill. There is not the slightest doubt that a vote would have been overwhelmingly favorable. The Tennessee Senator, who is the author of the Air Mail Act of 1934 which effectively hampers the development of air transportation, had announced earlier that he would use every means at hand to kill the bill at the session just closed. He persisted despite the obvious anxiety of the rest of the Senate to bring the bill to a vote. Many Senators were plainly irritated at his fruitless and stubborn stand.

Most of McKellar's time was taken up by petty personal remarks directed toward Norman V. Haley, director of the air mail bureau of the Interstate Commerce Commission, whom he accused of lobbying for the airlines. This whole matter had been thrashed out in hearings earlier and it was obvious that no Senator joined McKellar in his views.

Probably the one effective weapon McKellar had was the fact that several meetings of air transport operators had been held in Room 212 of the Carlton Hotel with Mr. Haley for the purpose of discussing and working over the bill. Mr. Haley was at the Carlton at the express permission and desires of the I. C. C. Although McKellar's mudslinging attempts proved nothing, some observers believe it was a tactical mistake to have held the meeting at all and to give McKellar ammunition, no matter how puerile that ammunition might be in the end.

#### Demands Experts Leave

At one point in the debate Senator McKellar demanded that two I. C. C. employees, Louis Inwood and George Keyser, leave the floor of the Senate. This they did over protests by Senator Burton Wheeler and others who had requested the presence of these men as technical assistants, a practice commonly followed in the Senate. By such indirect and devious routes, McKellar was able to stall off final action on the bill and on three occasions answered in the negative when Senators asked him point blank if he would permit the bill to come up for a vote.

Among the Senators leading the fight for the bill in addition to Senator McCarran were Wheeler, of Montana; Truman, of Missouri; Reynolds, of North Carolina, and Austin, of Vermont.

The most effective work on the bill was done by the Interstate Airways Committee, sponsored by a number of chambers of commerce and civic organizations. Through the personal efforts of Stanley T. Wallbank, president of the Denver Chamber of Commerce, effective work was accomplished in lining up votes in both the Senate and the House. In each case it was merely a matter of "education" for the committee found no outspoken opposition in either house except that of McKellar's. Handicapped by a late start in its campaign, the committee piled up an enormously creditable record within a short time and is continuing its efforts during the interim between sessions. The committee was organized after it had been discovered that no individual or group was working effectively for the bill and because many cities have a direct stake in the bill's passage.

Those who have watched the progress of the bill on Capitol Hill also give great credit to Lieutenant Carl Harper, U. S. Navy, retired, who worked unsparingly for the legislation. Lieutenant Harper, although on no pay roll at present, is thoroughly conversant with air transport matters by reason of having worked with a number of Congressional committees in the past.

Summed up, airline observers believe that passage of the McCarran-Lea bill is just a matter of time and that the session was a favorable one despite lack of concrete results.

On the side of manufacturers, Leighton Rogers, president of the Aeronautical Chamber of Commerce, said the session had been an excellent one—meaning that unfavorable legislation had not gotten to first base and that some favorable pending legislation was moving along in good shape. Outstanding in the chamber's program have been the hearings recently in progress on removal of the 10% profit limitation on Navy contracts, a subject which will be covered more fully in succeeding issues.

Summary of legislation by subjects follows:

### Air Transport

The McCarran-Lea Bill (S-2 and H. R. 7273) is on the calendar for action at the next session. During the past session the bill was introduced, extensive hearings held, and reported out to both Houses. It came up for debate only in the Senate but did not come to a vote, hence it is "unfinished business". Overwhelming majority in the Senate are favorable. House sentiment not so strong principally because many House members know nothing of the bill. Since advocates of the bill did not expect passage last session, they believe much good has been accomplished to date and that the bill will pass next session. This bill would remove the political control of the Post Office Dept. and place the airlines under regulation of the Interstate Commerce Commission along with railroads and motor carriers.

### Air Mail

H. R. 6628, which authorizes an increase of 3,000 miles in route mileage and would mean a number of new air mail contracts, was stopped in the Senate but passage at the next session is a certainty because the P. O. has additional funds available for expenditure as soon as it gets authorization. Advocates of the McCarran-Lea bill prevented passage of this bill in the Senate when Senator McKellar stubbornly refused to let the McCarran-Lea bill come to a vote. H. R. 6628 is a P. O. bill, and passed the House on June 2. It remains as unfinished business in the Senate.

The Haines bill, H. R. 7447, authorizing experimental air mail service in the sub-stratosphere, and with autogiros and pick-up devices, passed the House easily on Aug. 2, but did not come up for action in the Senate although it is on the calendar and remains there as unfinished business.

The Mead bill, H. R. 4732, which

would give the Post Office further control over the air transportation system by amending the Air Mail Act of 1934, did not get far. It came up for debate in the House but was objected to on the part of several Representatives and passed over. It remains on the calendar of the House but has not been reported out to the Senate.

The one air mail accomplishment this session was passage of the Dimond bill, H. R. 6167, providing for an Alaskan air mail service by authorizing a surcharge. Heretofore only star route mail service by air has been provided in Alaska. The P. O. has the funds with which to begin operations shortly.

The foreign air mail bill sponsored by Mr. Mead, H. R. 7873, got only as far as the House and Senate calendars but did not come up for debate or vote. It is generally considered an unsatisfactory and loosely written bill from every viewpoint, even that of the P. O., and probably will be considerably revised by next session. No foreign air mail legislation passed this session, but something must be passed next session in view of expiring Pan American contracts. The McCarran-Lea bill also has foreign provisions, and the U. S. Maritime Commission is expected to recommend legislation by the first of the year.

Several other bills pertaining to air mail were introduced but were of no consequence.

### Washington Airport

The special Congressional airport commission, after a year of internal squabbling, recommended purchase of a large site at Camp Springs, Md., ten miles southeast of Washington. The site was highly spoken of from an operations standpoint, although farther out of the city than the present private airport. A bill, S-2838, was introduced to carry out the recommendation, and passed the Senate, but no appropriation accompanied the bill. It failed in the House and passage at any time in the future is imperiled by opposition of Navy lobby, the Navy having an experimental radio station near the site.

What did pass this session was the Copeland-May bill which closes Military Road, now crossing the airport; leases fifty-three acres of experimental farm land from the Dept. of Agriculture for fifty years at \$1 per year, and

provides for the filling in of a lagoon for lengthening of runways. Bill considered exceptionally unsatisfactory since two government agencies will strongly oppose the extensions. One good feature is the closing of Military Road which has made the airport an absurdity for years. The bill could hardly even be considered a temporary make-shift as governmental opposition will probably tie up improvements for a long time to come. Thus another session closed without a new and large airport for Washington, after eleven years of discussions. The matter is almost exclusively in the hands of Congress, which administers for the District of Columbia. Options on the Camp Springs sites expire shortly so that the matter of a new airport must start all over again.

### Airway Aids

A serious blow to airlines who are desperately in need of air navigation aids for the coming winter was the failure to pass S-2718 and H. R. 8510, which would have permitted the airlines to construct aids and have the government purchase them later, thus hastening the entire airway aid program. The bill passed the Senate under Senator Copeland's sponsorship but failed to reach House action. It remains on the House calendar but by next January the crisis will have been reached and passage will be too late for this winter.

### Airline Safety

The McCarran-Crosser bill (S-1760 and H. R. 7474) which would turn air line regulations over to the I. C. C. from the Bureau of Air Commerce, passed through the committee hearing stage and the bill was reported out to the Senate. However, the bill still rests in the House committee. In the Senate, Senator Copeland is vigorously opposed. The air line pilots are chief advocates of the bill, which remains on the Senate calendar where passage following the McCarran-Lea bill seems probable next session. Strong labor support will undoubtedly aid it in the House although its chances there are not clear. The Dept. of Commerce is outspokenly opposed to the bill, since its passage would strip the Bureau of Air Commerce of many of its primary functions.

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### P. O. Disapproves

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change of service between lines will be given consideration on their merits."

The crux of the decision was directed at "monopoly." Mr. Crowley said that "if the proposed contract should be approved, then similar arrangements would be made by the three larger aviation companies with the smaller air mail contractors which would necessarily result in complete control of the air transport industry and of the carriage of mail by airplane becoming concentrated in the hands of a few large monopolistic corporations."

Both United and Western Air denied that the contract would have meant monopoly or control of one line by the other. Their witnesses pointed out that it was necessary from the standpoint of public convenience to have an interchange of equipment at Salt Lake City in order that passengers would not have to change planes. The interchange was effected particularly for sleeper planes.

In his conclusion Mr. Crowley said: "Upon a careful review of all the evidence in this case and the law, it is impossible to escape the conclusion that if the proposed arrangement be permitted, United Air Lines would actually obtain control of practically every detail of the operations of Western Air Express. Western Air would ultimately become a mere shell, owning only an air mail contract and having no real need for any other assets or equipment of any kind or character. United Air Lines, by the proposed arrangement, would actually conduct an off-line operation between Los Angeles and Salt Lake City."

At the hearings held July 29th and 30th, American Air Lines and Trans-

continental & Western Air, Inc., opposed the agreement. Continental Air Lines entered a subsequent opposition. Eastern Air Lines expressed approval of the arrangement. Other airline representatives were present but did not participate.

Mr. Crowley said "it is obvious from the evidence submitted that the purpose of the proposed agreement is not to provide a service between Los Angeles and New York for the convenience of passengers. As stated hereinbefore, only one schedule needs to be slightly changed to enable passengers traveling between the two cities to do so during their waking hours or be provided with sleeper service over the main line of United. In fact, a careful consideration of the evidence in the record after the hearing shows that there is not the slightest justification for the claim that the convenience of the passengers would be served to any considerable degree by this inter-line operation, even if it were legal.

"...it appears that the agreement amounts to all practical intents and purposes to the acquisition by United of a practically total operating control of Western Air... The Post Office Department cannot recognize or tolerate any such attempted transfer of responsibility from one air mail contractor to another, and in the event that such attempted transfer is insisted upon by an air mail contractor, it must take such steps as may be necessary to procure the cancellation of the contract on such route and the re-advertising of same according to law."

Herbert Bingham, counsel for United, said he would confer with officials of United before deciding what steps, if any, would be taken by his line.



## Westinghouse Low Bidder For 44 B. A. C. Radio Range Stations

**Bids Advertised for 30 MRL and ML Radio Stations for  
Opening on Sept. 3 as Seven Million Airway  
Aid Program Starts Moving**

Westinghouse Electric and Manufacturing Company was low bidder for the construction of forty-four simultaneous radio range and broadcast stations for the Bureau of Air Commerce in the first major advertising of bids for the new navigation aid program.

Bids were opened August 20 with five companies competing for the contracts. The bids were:

Westinghouse Electric and Manufacturing Company—\$697,366.

Bendix Radio Corporation—\$797,906.  
Federal Telegraph Company—\$823,984.96.

Radio Corporation of America—\$1,121,955.

General Electric Company—\$1,169,495.

Each bid specified that the first station was to be completed within six months, the second station to be completed in nine months, and the remaining stations to be completed at the rate of six stations per month, following close of the tenth month. The single exception to this was RCA's bid, which specified that remaining stations were to be completed at the rate of six per month following the close of the ninth month after awarding of the contract.

The Bureau has also advertised for bids for construction of thirty MRL and ML radio station equipments, bids scheduled for opening on September 3 by the division of purchases and sales of the Department of Commerce. It is expected that all five bidders for the forty-four radio range stations will also bid for the second batch of stations.

Locations of the forty-four stations are:

Ablene, Texas	Tampa, Florida
Baker, Oregon	Waynoka, Okla.
Bakersfield, Calif.	Wendover, Utah
Belgrade, Mont.	Whitehall, Mont.
Chenalls, Wash.	Allentown, Pa.
Columbus, New Mex.	Camden, N. J.
Corpus Christi, Tex.	Erie, Pa.
Denver, Colorado	Idaho Falls, Idaho
DuBois, Idaho	Riverside, Calif.
Eugene, Oregon	Syracuse, N. Y.
Florence, South Carolina	Tucumcari, New Mex.
Great Falls, Mont.	South Bend, Ind.
Indio, California	Lansing, Mich.
Kingston, Calif.	Smith Grove, Ky.
Malad, Idaho	Anton Chico, N. Mex.
Meridian, Miss.	Springfield, Ill.
Montague, Calif.	Peoria, Illinois
Palmdale, Calif.	Joliet, Illinois
Roseburg, Oregon	Parco, Wyoming
Sacramento, Calif.	Toledo, Ohio
Savannah, Ga.	Dallas, Texas
	Somers, Penna.
	Arlington, Oregon

Each of the stations must be equipped for remote control.

### B. A. C. BUYS PLANES

**Bids to Be Opened Aug. 30; Also  
Buying Parachutes**

Bids for the purchase of six three-place cabin airplanes for the Bureau of Air Commerce were to be opened by the division of purchases and sales of the Department of Commerce on August 30. Bids were to include aircraft radio telephone transmitting equipment and electrical equipment. An alternate bid was asked for planes equipped with controllable pitch metal propellers.

The Bureau also asked a trade-in allowance as part payment for the new planes on a Bellanca Pacemaker pow-

ered with a Wright R975. The Bellanca has had a total flying time of 1,763 hours.

Bids were to be opened on August 31 for purchase by the Bureau of thirty-five 24-foot parachutes, three twenty-six foot parachutes, and one twenty-eight foot parachute.

## Alaskan Telegraph's Thirty-Fifth Year

Washington, August 24—Today marks the 35th anniversary of the Alaska Communication System, established and operated by the Signal Corps of the United States Army. The system was officially established by Act of Congress of May 26, 1900, but it was not until August 24, 1902 that the commanding general, Department of Alaska, was able to communicate by telegraph with all the military posts of his command in the Territory.

In 1902 the only means of transportation in Alaska was by dog team in winter and small river boats and pack trains in the summer. Today, no land lines are operated and the radio and airplane are commonplace in their respective fields.

At present there are 21 radio stations in operation, exclusive of the net control station located at Seattle, Wash. Four officers, 185 enlisted men and 24 civilians are assigned to duty with the system. Commercial traffic for the fiscal year 1903 totaled \$14,243.54. For the fiscal year 1937 the corresponding figure was \$428,320.37.

## P. O. Orders United to Discontinue 2nd Camden Service; TWA Protested

In a decision handed down August 24th, the Post Office Department has ordered United Air Lines to discontinue operation of its second daily round-trip between Camden, N. J., and Cleveland via Allentown, Pa. The discontinuance order was expected by all parties concerned.

Hearing was held July 28th following a protest entered July 19th by Jack Frye, president of Transcontinental and Western Air, Inc., when United Air Lines announced that it would begin its service August 20th, making Camden a terminal. TWA's complaint was based on the grounds that the additional service was in violation of Section 15 of the Air Mail Act of 1934 which specifies that after June 30, 1935, no air mail contractor shall be allowed to maintain passenger or express service off the line of his air mail route which in any way competes with passenger or express service available upon another air mail route.

Post Office Solicitor Karl A. Crowley upheld this view in an unusually long decision.

Appearing for TWA at the hearing were Gerald B. Brophy of Chadbourne, Wallace, Parke & Whiteside, attorney for TWA, and John B. Walker, vice-president-traffic. United was represented by Herbert M. Bingham, attorney, and P. M. Wilcox, secretary of United Air Lines Transport Corp.

### Mitchel Race Canceled

Army Air Corps officials have announced that the annual Mitchel Trophy Race held annually at Selfridge Field, Michigan, has been cancelled this year because "circumstances have made it advisable." Plans had been made to hold the meet Sept. 18 but Major Edwin J. House, commanding the 1st Pursuit Group, GHQ Air Force, ordered all preparations stopped. The new Seversky P-35 was to have been an outstanding contestant for the trophy this year.

## Army's Automatic Landing Successful

Washington, August 25—A series of experimental flights have been completed by the Army Air Corps at Wright Field, Dayton, Ohio, in which a large army cargo plane was landed several times under full automatic control.

A release from the War Department states that "the plane was repeatedly landed under adverse wind conditions without any human assistance of any kind. The perfection of this device makes it possible to land a plane in a dense fog, in absolute darkness or under other adverse conditions. This development opens up a wide field of speculation as to the future of military and commercial planes guided and controlled by automatic devices. The automatic landings of the big airplane were made with amazing accuracy."

The craft was landed without assistance from the human pilot of the plane and also without remote control from the ground. A Sperry gyro pilot flew the craft. All electro-mechanic elements of the system were designed by personnel of the Material Division at Wright Field. The Air Corps expects to conduct further experiments.

Capt. Carl J. Crane, Capt. George V. Holloman, and Raymond Stout were in the plane during the automatic landings.

## WESTERN MEETING SET, SEPT. 23-25

**Most Important Aviation Conference  
in Years to Draw Big List of  
Speakers**

Final plans are being completed for the Western Aviation Planning Conference to be held at Sacramento, Calif., September 23, 24 and 25, according to Arthur Dudley, conference secretary, who has acted on behalf of Governor Frank F. Merriam in arranging the program.

More than fifty leaders in every branch of aviation have definitely signified their intentions of appearing on the program, while it seems probable that every civic group concerned with aviation in the eleven Public Land states in the West, will be represented in addition to airlines, manufacturers, private flyers, military units, and government officials.

From Washington the following are scheduled to speak: General H. H. Arnold, Army Air Corps; Richard S. Boutelle, Bureau of Air Commerce; Senator Royal S. Copeland, Representative John D. Dingell (D-Mich.); Brigadier General Delos C. Emmons, GHQ Air Force; Fred D. Fagg, Jr., Director, Bureau of Air Commerce; Charles P. Graddick, Post Office Department; Col. J. M. Johnson, Assistant Secretary of Commerce; Representative Clarence F. Lea (D-Calif.); Senator Pat McCarran (D-Nev.); Major A. B. McMullen, Bureau of Air Commerce; Carroll Miller, chairman, Interstate Commerce Commission; Col. W. Sumpter Smith, Works Progress Administration; Major General Oscar Westover, Chief of the Air Corps; Admiral Arthur E. Cook, Chief, Navy Bureau of Aeronautics.

Airlines will be represented on the program by: Alvin Adams, president, Western Air Express; Avery Black, president, Continental Air Lines; J. R. Cunningham, radio technician, United Air Lines; Alfred Frank, National Parks Airways; Jack Frye, president, TWA, Inc.; Halner Hinchshaw, legal dept., United Air Lines; Richard Leferink, president, Wyoming Air Service; C. R. Smith, president, American Airlines; C. C. Thompson, assistant to the President, United Air Lines; Col. Clarence M. Young, manager, Pacific Division, Pan American Airways; G. E. Buckstell, president, Grand Canyon Airlines.

Among manufacturers will be Donald Douglas, president, Douglas Aircraft Co.; Gordon D. Brown, sales dept., Douglas Aircraft Co.; Bertrand Rhine, president, Aircraft Operators Association.

Two women are on the program, Mrs. Mary Charles, Women's Air Reserve, and Miss Loretta M. Schimmoller, Aerial Nurse Corps of America.

Others to speak will be Gill Robb Wilson, Trenton, N. J., state aviation officials president; Commander G. E. Rosendahl, Lakehurst, N. J.; W. P. Balderston, Los Angeles; A. F. Bonnalie, Boeing School of Aeronautics; Arthur Ayres, Bureau of Air Commerce; W. Jefferson Davis, attorney; Capt. B. M. Doolin, manager Mills Field, San Francisco; Gen. W. E. Gillmore, San Francisco; Fred Grieme, assistant chief, airport section, Bureau of Air Commerce; T. Lee, Jr., Boeing School of Aeronautics; Wayne W. Parrish, editor, AMERICAN AVIATION; Col. Earl C. Popp, Bureau of Air Commerce; Commander V. H. Ragsdale, U. S. Naval Reserve; Dr. Raymond Staub, Portland, Ore.; A. R. Stevenson, Jr., president, Private Filers Association; Stanley T. Wallbank, president, Denver Chamber of Commerce; Waldo Waterman, Los Angeles; Grove Webster, Private Filers Association.

Some 2,700 invitations have gone out over Governor Merriam's signature. Acceptances have been received from every governor of the eleven states invited and questionnaire blanks have been sent out to determine subjects of most vital interest to those attending. Conference correspondence should be addressed to Mr. Dudley at the Sacramento Chamber of Commerce.

### Airport Lighting

An article on airport lighting will be featured in the next issue as well as a symposium on complimentary rides on airlines.

## De-Icing Problem Still Far From Solution, Airline Men Say

**Causes of Last Winter's Troubles Eliminated But Much Thought and Research Needed to Whip Whole Icing Stickler**

Although refinements have been made in de-icing equipment which will prevent a repetition of the serious trouble experienced by some airlines last winter, the problem of icing is far from being satisfactorily eliminated, in the opinion of several airline maintenance men who have studied the matter.

Recently a conference of airline maintenance men was held to discuss icing conditions and the Bureau of Air Commerce has announced an improved de-icing equipment to be used during the coming winter.

Despite these improvements, however, a number of airline men believe that some of the governmental bodies, such as the National Advisory Committee for Aeronautics and the Bureau of Standards, should be in a position, with the facilities they have, to lend great assistance to the operators by pursuing the problem among some line other than that which is now being followed. In their opinion more time and money should be spent toward the elimination of acute and pressing problems of the air transport industry than spending their time on some of the other things which are of far less importance from a practical operating point of view.

"Icing is very definitely the biggest problem of the winter operation and is far from being satisfactorily eliminated in the present state of de-icer development," one well known maintenance man told AMERICAN AVIATION.

"The general consensus of most airlines is that de-icers in their present form are definitely not the answer to the icing problem; they are more of a temporary measure until something better is offered. I do not believe that any airline would knowingly dispatch an airplane into icing conditions depending upon the operation of their de-icers for the elimination of ice accumulating on the wings. They are believed more important as a means of getting out of an unanticipated icing condition, and are carried as a matter of safety, rather than as a means of permitting scheduled flights through territories where ice conditions will occur."

### Propellers O. K.

On the other hand, opinion seems to be that the matter of propeller de-icing is very well taken care of through the use of the slinger ring and propeller hub spinners, i. e., by using a fluid with de-icing characteristics such as alcohol or analoil distributed through pipes to the slinger ring around the back side of the propeller hub spinner. This has been found more effective in eliminating ice from propellers will probably be used by all airlines the following winter.

Last winter much trouble was caused with the old-type de-icers. Innumerable small holes were incurred from static discharge of electricity, which when released would puncture the rubber forming the envelopes of the de-icers. This trouble has been eliminated by impregnating the rubber with graphite at the time of manufacture, which has the effect of carrying off the static electricity.

Some difficulty was experienced by the airlines last winter from the de-icer coming loose on the wing and blowing off, either due to a failure of the structure to which the de-icer was attached or to the failure of the de-icer itself. The refinements made on the equipment should entirely eliminate a recurrence of this trouble during the coming winter.

As far as carburetor icing goes, this problem has been solved to a point of complete satisfaction. This type of icing is present not only during the winter months but also during the summer. The present method of eliminating ice in carburetors is by use of hot air tubes through the exhaust manifold, raising the temperature of the carburetor air to the point where the ice will melt. Carburetors so designed have very little

tendency to ice up. Ice in the carburetor has been noted to cause complete engine failures on a number of occasions.

### TWA Camera Contest

TWA has launched a camera contest with some 41 prizes offered for the best photograph made of one of the line's new Skysleepers, Skylubs or Skyliners. Pictures can be either exterior or interior, in flight or at an airport. First prize is a round-trip cross-country ride, second prize is a 3,000 mile trip. Only amateurs may compete and no entry blank is required. Photos are submitted to the Kansas City headquarters with names and addresses of contestants on the back side. The contest runs until October 15.

## 1938 Aircraft Show Slated For Chicago

Next year's one big aircraft show will be held in Chicago from January 28 to February 6, Leighton Rogers, president of the Aeronautical Chamber of Commerce, announced on August 13.

The show committee of the Chamber has granted its Class A sanction to the exhibition to be held in the International Amphitheater under management of the International Air Show, Inc., which includes a group of prominent Chicago business men.

The industry's 1938 model airplanes, engines and accessories will be introduced to the public at this show.

## AUTHORIZED AIR MAIL SERVICE

In view of the numerous changes in air mail schedules effective July 16, AMERICAN AVIATION requested comparative lists from the Post Office Department for the convenience of airline officials. Second Assistant Postmaster Harlee Branch has furnished the following table.

As of July 1, 1937			As of July 16, 1937, except as noted		
Route	Round trips and Frequency	Terminal	Round trips & Frequency	Terminal	
1	3 daily	Newark-Oakland	3 daily	Newark-Oakland	
2	1 daily ex. Sat., Sun. and hol.	Newark-Chicago	No change		
3	3 daily	Newark-Los Angeles	2 daily	Chicago-New Orleans	
4	2 daily	Fargo-Seattle	1 daily ex. Sun. and hol.	Fargo-Seattle	
5	1 daily	Fort Worth-Los Angeles	2 daily	Fort Worth-Los Angeles	
6	*1 daily	Fort Worth-Los Angeles	1 daily	Dallas-Los Angeles	
7	*1 daily	Los Angeles-Dallas			
8	* One-way trips				
9	2 daily	Newark-New Orleans	No change	Newark-Miami	
10	2 daily	Newark-Miami	1 daily ex. Sun. and hol.	Jacksonville-Miami	
11	1 daily ex. Sat., Sun. and hol.	Newark-Chicago	No change		
12	1 daily	Chicago-New Orleans	2 daily	Chicago-New Orleans	
13	1 daily ex. Sun. and hol.	Chicago-New Orleans	No change		
14	1 daily	Chicago-Dallas	No change		
15	2 daily	Chicago-Kansas City	1 daily	Seattle-Portland	
16	2 daily	Chicago-Jacksonville	2 daily	Portland-Oakland	
17	1 daily	Seattle-Portland	3 daily	Oakland-Los Angeles	
18	2 daily	Portland-Oakland	1 daily	Los Angeles-San Diego	
19	1 daily ex. Sat., Sun. and hol.	Oakland-Los Angeles	No change		
20	1 daily	Los Angeles-San Diego	1 daily	Salt Lake City-San Diego	
21	2 daily	Salt Lake City-Portland	1 daily ex. Sat. and Sun.	Salt Lake City-Los Angeles	
22	1 daily	Portland-Seattle	*1 daily ex. Sat. and Sun.	Salt Lake City-Los Angeles	
23	1 daily	Pendleton-Spokane	* Effective August 1, 1937		
24	1 daily	Salt Lake City-San Diego	3 daily	Washington-Detroit	
25	* One-way trips		1 daily	Dallas-Brownsville	
26	2 daily	Washington-Detroit	1 daily	Dallas-San Antonio	
27	1 daily ex. Sun. and hol.	Fort Worth-Brownsville	1 daily	Fort Worth-Galveston	
28	1 daily	Fort Worth-Galveston	1 daily	Amarillo-Houston	
29	1 daily	Dallas-Amarillo	2 daily	Chicago-Fargo	
30	1 daily	Dallas-Fort Worth	1 daily ex. Sun. and hol.	Fargo-Fernbach	
31	2 daily	Chicago-St. Paul	1 daily		
32	1 daily ex. Sun. and hol.	Chicago-St. Paul	No change		
33	2 daily	St. Paul-Fargo	No change		
34	1 daily	Fargo-Fernbach	2 daily	Great Falls-Salt Lake City	
35	2 daily	Cheyenne-Denver	No change		
36	1 daily ex. Sun. and hol.	Cheyenne-Denver	No change		
37	2 daily	Boston-Newark	2 daily		
38	1 daily ex. Sun. and hol.	Boston-Newark	No change		
39	1 daily	Great Falls-Salt Lake City	1 daily	Albany-Newark	
40	1 daily ex. Sun. and hol.	Great Falls-Salt Lake City	2 daily	Newark-Fort Worth	
41	1 daily	New Orleans-Houston	1 daily	Dallas-Newark	
42	1 daily	Boston-Cleveland	No change		
43	1 daily ex. Sun. and hol.	Albany-Buffalo	1 daily	Charleston-Atlanta	
44	2 daily	Cleveland-Nashville	2 daily	Atlanta-Dallas	
45	1 daily	Albany-Newark	2 daily		
46	1 daily	Newark-Fort Worth	1 daily		
47	*1 daily	Dallas-Newark	* Effective date indefinite		
48	*1 daily	Fort Worth-Newark			
49	* One-way trips				
50	1 daily	Charleston-Atlanta	1 daily	Bismarck-Huron	
51	1 daily	Atlanta-Dallas	2 daily	Minneapolis-Kansas City	
52	1 daily ex. Sun. and hol.	Atlanta-Dallas	No change	Omaha-Kansas City	
53	2 daily	Washington-Chicago	1 daily	Kansas City-Tulsa	
54	1 daily	Bismarck-Huron	1 daily	Bangor-Boston	
55	1 daily	Minneapolis-Kansas City	1 daily	Burlington-Boston	
56	1 daily	Omaha-Kansas City	2 daily	Bangor-Caribou	
57	1 daily ex. Sun. and hol.	Kansas City-Tulsa	1 daily ex. Sun. and hol.	Burlington-Montreal	
58	1 daily	Bangor-Boston	*1 daily ex. Sun. and hol.		
59	1 daily ex. Sun. and hol.	Burlington-Boston	* Effective August 1, 1937, frequency indefinite		
60	1 daily	Bangor-Bar Harbor	1 daily	Billings-Cheyenne	
61	1 daily	Billings-Cheyenne	*1	Billings-Great Falls	
62	1 daily	Denver-El Paso	No change		
63	1 daily	Chicago-Fort Worth	No change		
64	1 daily ex. Sun. and hol.	Chicago-St. Louis	2 daily	Daytona Beach-St. Petersburg	
65	1 daily	Jacksonville-St. Petersburg	1 daily	St. Petersburg-Miami	
66	1 daily	Detroit-Milwaukee	2 daily	Detroit-Milwaukee	
67	1 daily	Detroit-Milwaukee	No change		
68	1 daily ex. Sun. and hol.	Detroit-Milwaukee			
69	1 daily ex. Sun., Wed. and hol.	Hilo-Honolulu			
70	1 daily ex. Sun., Tues. and hol.	Honolulu-Lihue			



# United Protests Mail Pay Cut

## In Letter to P. O., W. A. Patterson States United Will Have to Carry Same Volume of Mail Free Even Though It Loses \$150,000 Annual Pay

W. A. PATTERSON, president of United Air Lines, has opened up the whole question of inadequate air mail compensation whereby a number of the major airlines are carrying huge volumes of air mail free, in a letter protesting the elimination of United's fourth air mail schedule between Newark and Chicago.

Mr. Patterson addressed a sharp reply to Harlee Branch, Second Assistant Postmaster General, following receipt of Mr. Branch's letter advising United that its fourth pay schedule had been cut off effective July 16. Both letters were published in the July issue of the United Air Lines house organ.

Although Mr. Patterson did not hint at any "recriminatory" measures against United because that airline has been outspoken in its advocacy of the McCarran-Lea Bill which would remove political control of the Post Office over the airlines, general opinion in Washington has been that the Post Office took that method of "spanking" the airline for "getting out of line." Elimination of the schedule means an annual loss to United of \$150,000, while the Post Office at the same time awarded a third transcontinental pay schedule to American Airlines with the official announcement that it was now to be the policy to give each transcontinental line three schedules instead of continuing on an uneven basis.

In his reply to Mr. Branch, however, Mr. Patterson pointed out that although the Post Office has taken away a pay schedule, United will have to continue to carry the same amount of mail free.

The decision by the Post Office to give each transcontinental three pay-schedules is a new precedent in the Department, for heretofore there has at least been some stab to pay the lines according to the amount of mail carried, and United has had four pay schedules merely because it has carried the bulk of the mail. As reported in an earlier issue, Charles P. Graddick, Superintendent of the Air Mail Service, testified in the Senate I. C. C. hearings that no matter how many schedules were given other lines, the greatest volume of mail would flow over United's Newark-Chicago route simply because the greatest volume of air mail goes in that direction.

Mr. Patterson in his letter suggested that the P. O. Department "administer the existing law so as to pay fair compensation for work actually done instead of distributing compensation between contractors, irrespective of the volume of work done by each," and stated that he could not acquiesce in the Post Office policy.

The two letters follow:

June 30, 1937.

Mr. W. A. Patterson  
President, United Air Lines Transport Corp.  
Chicago, Illinois.

My dear Mr. Patterson:

Effective July 16, 1937, all previous authorizations on Routes AM-1 and AM-11 will be discontinued and in lieu thereof the following service will be authorized:

AM-1

Three (3) round trips daily Newark to Oakland.

AM-11

One (1) round trip daily Seattle to Portland.

Two (2) round trips daily Portland to Los Angeles.

One (1) round trip daily Los Angeles to San Diego.

One (1) round trip daily Oakland to Los Angeles.

The discontinuance of the fourth trip on route AM-1 between Newark and Chicago is not being made on account of any unsatisfactory mail service by your company. On the other hand, the service given by you has been very efficient and the change is being made only on account of the determination that it will be the best policy for the Department to authorize three trips daily on all major routes and, as soon as appropriations will permit, two round trips daily on all other routes. I believe that you will appreciate our position in this regard.

Sincerely yours,

(Signed) HARLEE BRANCH,  
Second Assistant Postmaster General.

\* \* \*

July 8, 1937.

Hon. Harlee Branch  
Second Assistant Postmaster General  
Washington, D. C.

Dear Mr. Branch:

I acknowledge receipt of your letter on June 30, advising me of proposed changes in authorized mail schedules on Routes AM-1 and AM-11 effective July 16, 1937.

Your letter states that the discontinuance of the fourth trip on Route AM-1 between Newark and Chicago is not being made on account of any unsatisfactory mail service by United Air Lines, but because of "the determination that it will be the best policy for the Department to authorize three trips daily on all major routes."

I feel that I would be remiss in my duties as president of United Air Lines if I acquiesced in a policy that the mail compensation of transcontinental airlines should be measured by the number of contractors, instead of by the value and extent of the service rendered by each contractor. You are fully aware of the fact that under existing legislation, the amount of compensation paid to an air mail contractor is not controlled by the rate per airplane mile for average monthly loads carried, but is also dependent upon the number of mail schedules authorized from time to time by the Post Office Department. I estimate that the elimination of the fourth schedule between Newark and Chicago, pursuant to your letter of June 30, will reduce the mail compensation of United Air Lines to the extent of approximately \$150,000 a year, though no reduction has been made in the rate of compensation prescribed by the Interstate Commerce Commission or in the extent or value of service rendered to the Post Office Department on Route AM-1.

The proviso of Section 3 (f) of the Air Mail Act as amended August 14, 1935, relating to credit trips, is permissive by its terms, but your order of June 30, 1937, forces us to designate a credit trip to perform the service now rendered on a mail pay trip. We must fly the air mail tendered to us on Route AM-1 and the necessary mail service cannot be performed on the re-

stricted schedules unless we either destroy passenger or express revenues by operating exclusive mail trips or designate credit trips to carry without compensation mail for which we are now paid approximately \$150,000 a year. We are compelled to select the latter alternative, and I enclose carbon copy of a letter from United Air Lines to Mr. Cislser which, when put into effect, will give the Post Office Department the identical air mail service it now receives on Route AM-1 at a reduction in mail pay of approximately \$150,000 a year.

During the year 1936, the transcontinental mail loads carried for the Post Office Department by United Air Lines on Route AM-1 averaged 586 pounds per mail pay trip, as compared with an average of 483 pounds on AM-2, 232 pounds on AM-4 and 201 pounds on AM-23. I cannot appreciate the logic of a policy which results in a ruling that compensation to be paid to transcontinental air mail contractors should ignore these comparative figures and be measured not by loads carried but by the number of contractors performing the work. To me it seems unjust and altogether unjustifiable for the Post Office Department to order that compensation shall be taken from a contractor whose route produces the heaviest mail loads and given to routes producing lesser mail loads, in order that there may be equality in the number of mail pay schedules allotted to each route. If the credit trip system did not exist, thus giving the Post Office Department assurance that a drastic reduction in

compensation payable to United Air Lines will not cause a corresponding reduction in service, I am sure the Post Office Department would not adopt a policy of giving to each route an equal number of pay schedules.

The statute says that air mail contractors shall receive fair and reasonable rates of compensation "for the transportation of air mail," and I submit that the effort of the Post Office Department should be to administer the existing law so as to pay fair compensation for work actually done instead of distributing compensation between contractors, irrespective of the volume of work done by each.

During the first five months of 1937, United Air Lines sustained an operating loss of \$643,358.71 from transport operations. As president of the company, I cannot do otherwise than protest against an order which will not result in any reduction of operating expenses or in mail service performed, but will reduce operating revenues approximately \$150,000 a year, in order to transfer a like amount to other contractors for the mere purpose of giving all transcontinental lines an equal number of mail pay schedules.

We have sent the enclosed letter to Mr. Cislser to give him information which he must have if your order of June 30 becomes effective on July 16, but for the reasons above stated I respectfully request that you reconsider your action.

Sincerely yours,

(Signed) W. A. PATTERSON,  
President.

## SPY SCARE

### Navy Intelligence Tightens Up on Radio and Aircraft Plants

A bona fide "spy scare" has suddenly developed within the aviation industry, particularly where aviation radio is affected, according to reliable reports from several quarters. It is understood that the current Sino-Japanese scrap is the cause.

There has recently been a tightening of surveillance of all aircraft factories, especially those doing business with the Navy. In at least two plants, one manufacturing aircraft and the other

doing radio work exclusively, no man is now hired without an O. K. from Navy Intelligence and then only after a painstaking investigation of the man's entire background and character.

While efforts have always been made to keep military aviation developments a secret, the vigilance has been heightened within the past two months. Factories are closely watched as well as personnel. Those connected with several companies report that spy activities have resulted in restrictions of War-time proportions. Everything associated with radio, bomb rack arrangements, etc., is watched night and day.

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**AIR ASSOCIATES**

## United Air Lines Installs 60 "Flight Analyzers" in Transports

### First Airline in World To Use Automatic Recording Device Which Provides Complete Picture of Each Trip

United Air Lines' announced determination to maintain a constant and automatic check on each scheduled flight has been backed up by purchase and installation of sixty "flight analyzers" for its fleet of Boeing and Douglas transports, the line has announced.

Manufactured by the Julien P. Friez Company at Baltimore with the co-operation of R. D. Kelly, formerly chief instrument engineer for the company and now in charge of United's research division, the chief feature of the analyzers are barographs which provide complete pictures of each trip. United is the first airline in the world to install such devices.

On a small chart, 3 inches by 5 inches in size, is recorded the altitude at which the plane was flown "from block to block," the rate of climb after take-off, the rate of descent prior to landing, the total time of the trip, the comparative smoothness of the flight at the cruising elevations, the amount of time the automatic pilot was controlling the ship, and the number of radio telephone reports from the plane to ground stations and the time each was made.

From the chart it is possible for dispatchers, chief pilots and other operations officials as well as the pilot himself, to analyze the flight and reconstruct it graphically, with the help of the information it supplies.

United points out that the flight analyzer cannot be termed simply a barograph, as the altitude record is obtained by a barograph reading on a chart of inches of mercury. A scale translating inches of mercury into altitude measurement is applied to obtain the flight elevations. In addition to the barograph portion of the unit, recording arms actuated by electrical impulses chart the time the automatic pilot is in use, and the number and time of radio contacts with ground stations.

#### Weights 3 Pounds

The flight analyzer is housed in a case of duralumin, is five and one-half inches by eight and one-quarter inches, and weighs three pounds. Prior to the clearance of each flight, the chief dispatcher sees that a flight analyzer is prepared for installation on the plane. A fresh chart is placed in a special rack, which, like the hands of a clock, is geared to a clock mechanism which lowers the chart rack at such a rate that the recording pens move across the time division of the chart in exact ratio to the actual passage of time. Then the recording pens are properly adjusted, the cover of the analyzer closed and the device placed in position behind the express compartment near the tail of the plane.

The analyzer has a "cruising range" of eight hours, substantially in excess of the longest non-stop flight on United's system. At the conclusion of the trip, service mechanics immediately remove the flight analyzer and deliver the chart to the chief dispatcher, who examines it and discusses it with the pilot before he leaves the field at the end of his run. The dispatcher then routes the chart to the attention of the division superintendent, chief pilot and chief engineer.

One important effect of the flight analyzer, the airline says, is to check on the efficient use of the automatic pilot. A compilation of records since the devices have been in use on United Air

Lines indicates that the automatic pilots are now being used between 85 and 90 per cent of the time the planes are in the air, not including take-off and landing time. In addition, the records graphically indicate if the adjustment of the automatic pilot while in use has been accurate.

It is possible to compute the rates of climb and descent, the company regulations barring any glides steeper than 400 feet per minute, and 300 feet per minute in descents with sleeper planes.

United recently established a series of minimum flight elevations which in effect require that all flights be operated at altitudes of not less than 2,000 feet above the actual terrain, a regulation in the interests of safety and comfort. The flight analyzers serve as an extra check to guard against the possibility of low flying.

Still another record of value is to double-check adherence to the airways traffic control system of separating planes in flight by requiring eastbound ships to fly at odd altitudes and west-bound machines to stay at even elevations.

Finally, for the first time in the history of air transportation, the analyzer provides an invaluable engineering record of the average altitudes at which planes are flying. All charts ultimately reach the chief engineer's office and are filed for periodic reference and frequent compilation of the average cruising elevations being maintained.

### CHAIR OF AIR TRANSPORT

**Coburn Fills N. Y. U.'s New Post;  
First in U. S.**

New York, August 15.—James M. Coburn of Kansas City, Mo., has been selected by the Guggenheim School of Aeronautics of New York University to fill the new chair of air transport recently created. Coburn is said to be the first professor of air transport in the United States.

During the past two years Coburn has been employed by TWA at Kansas City as assistant navigation and airways engineer. He has patented or copyrighted several devices used in aviation.

Coburn was with the aviation section of the signal corps during the World War and engaged in barnstorming activities after the war's conclusion. He has been associated with aviation ever since then.

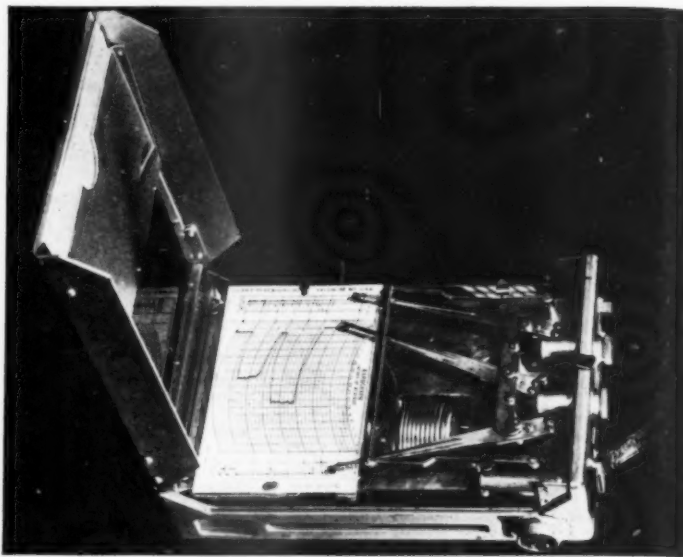
#### Humphreys at B. A. C.

Rogers Humphreys, former general sales manager for Chicago and Southern Air Lines, has been appointed chief of the air transport section of the Bureau of Air Commerce. This section is part of the safety and planning division of which R. C. Gazley is director. Mr. Humphreys will study transport operation problems, pilot and crew efficiency, passenger comfort and safety, ground facilities and operations control.

#### Wood to Purdue

San Diego, August 24.—K. D. Wood, aeronautical engineer for Consolidated Aircraft Corp., left the company on July 1 to become Professor of Aeronautical Engineering at Purdue University. He will service Consolidated as consulting engineer.

## The New Flight Analyzer



View of the flight analyzer installed on each of United Air Lines' 60 transports to provide constant automatic record of altitude, rate of climb and descent, use of automatic pilot, radio transmitter, smoothness of air conditions, etc.

### JAMES REPLACES BARRIE

**Western Air Operations Chief Returns  
to Old Job**

Jimmie James, veteran pilot for Western Air Express, was appointed to the position of vice-president in charge of operations on August 13. James had held the position until a year ago when he was given a leave of absence to do special flight work.

Allan Barrie, who filled the position during James' absence, has been assigned to experimental flying engineering.

#### Wagner to Ryan

William Wagner, assistant to C. W. Dayhoff, TWA press relations chief, has resigned effective September 1 to take over advertising and publicity for the Ryan Aeronautical Corporation, San Diego. Wagner was assistant to Dayhoff while the latter was in charge of the Los Angeles public relations office and was transferred to Kansas City when the news bureau was reorganized with Dayhoff as head.

#### Molitor to S. F.

John B. Molitor, superintendent of passenger service for TWA, has been transferred to active duty with the company's traffic department at its new station in San Francisco. TWA was to begin service into this city on September 5 in accordance with its recently-awarded air mail contract. Molitor will be district traffic agent. He has been with the company's passenger service department for about a year, succeeding Walter L. Avery, who resigned to go with Eastern Air Lines. Recently Molitor married Ruth K. Rhodes, former chief hostess on the line.

### TITLED FLEMING

**TWA Shifts Traffic Officials, Fleming  
in Four Spots**

Kansas City, Mo., Aug. 20.—Clarence E. Fleming has become one of the most titled men in air transportation. He has been appointed assistant general traffic manager of TWA, succeeding Harris W. Beck, of New York, who has been made manager of the line's Eastern traffic region.

Fleming was only recently appointed assistant to John B. Walker, vice-president—traffic, which title he retains. He is also mail traffic manager and traffic manager of TWA's central region. The changes came about at a meeting of the TWA traffic staff at Chicago at which Walker presided. Fleming entered the industry in 1926 with National Air Transport, subsequently being affiliated with Southwest Air Fast Express (Safe-way) and American Airways. He has been with TWA three years.

#### Fisher Elected to Sperry

Fred J. Fisher of Detroit has been elected to the board of directors of the Sperry Corporation, it was announced last month by Thomas A. Morgan, president of the company. Fisher has acquired a substantial amount of voting trust certificates of the Sperry Corporation in exchange for his stock in Vickers Incorporated.

#### Adams Heads Medicos

Dr. Elbridge S. Adams, formerly assistant to the chief of the medical section of the Bureau of Air Commerce, is now acting chief of the section, following the transfer of Dr. Roy E. Whitehead from the medical section to a special assignment in the Safety and Planning Division under R. C. Gazley.

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## TWA STARTS TWO ROUTES SEPT. 1, 5

### Two other Contracts Delayed in Signing and Inadequate Airports Present Difficulties

As this issue went to press, only two of the four new air mail contracts had been signed, these being with Transcontinental & Western Air, Inc., for the Dayton-Chicago and Winslow-San Francisco routes.

The third contract, with Wyoming Air Service, was expected to be signed at any time, although start of the Cheyenne-Huron service was in doubt because of inadequate airports at Scottsbluff, Neb., Pierre and Hot Springs, S. D. Rapid City, another scheduled stop on the line, could not even be rated because negotiations for a site were still in progress. Whether the Spearfish airport would be used as the only stop on the route, in place of the above localities, was one method being considered.

The fourth route, Washington-Buffalo, was also not settled definitely, although it was said at the Post Office that only formalities remained before the contract would be signed with Pennsylvania-Central Air Lines. Here again the airport situation is unfavorable, with Sunbury, Pa., and Olean, N. Y., definitely out for the time being, and perhaps Williamsport, Pa., also. Baltimore and Harrisburg appeared to be the only eligible stops between Washington and Buffalo.

Meantime TWA was completing arrangements to begin service over the Dayton-Chicago route September 1. The airline has been operating an off-line passenger and express service between Pittsburgh and Chicago for several years, hence the institution of the new air mail schedules is relatively easy. The Winslow-San Francisco route is scheduled for first operation on September 5, with gala celebrations planned at both Albuquerque and San Francisco.

Failure of Congress to pass H. R. 6628 which would have authorized the Post Office to expand the route mileage of air mail from 29,000 miles to 32,000 miles and miles flown from 45,000,000 to 52,000,000 miles, will prevent any advertising of new air mail routes until the first of the year at the earliest, Charles P. Graddick, Superintendent of the Air Mail Service, said on August 24.

Mr. Graddick has calculated that the Post Office is within nine miles of its mileage limit until Congress authorizes expansion, while the limit of miles flown is just about as close.

The situation is somewhat the reverse of the condition several years ago when the Post Office has mileage authorization but no additional funds. At the present moment the Department has about \$300,000, perhaps more, which it could expend for air mail had H. R. 6628 passed. No more schedules can be added, Mr. Graddick said, because the limit of miles flown has been reached. It is expected that the bill, which has already passed the House, will be one of the first orders of business when the next session convenes.

### Ports of Entry

The Department of Commerce has redesignated for periods of one year each as temporary airports of entry, Buffalo Marine Airport, Buffalo, N. Y., and Sault Ste. Marie Airport, Sault Ste. Marie, Mich. The Rouses Point seaplane base, Rouses Point, N. Y., has been designated an airport of entry without time limit.

### Mounce Joins United

San Diego, August 24—Gordon E. Mounce, former assistant to the manager and demonstration pilot for Consolidated Aircraft Corp., has accepted a European position with United Aircraft Exports Corps. Mounce holds the rank of First Lieutenant in the Air Corps Reserve. He has done aerial mapping, advertising, and student instruction work. He was employed by Consolidated in 1929 as demonstration pilot and was later sent abroad as European representative and demonstration pilot.

### Chicago and Southern Signs With Mechanics

The Air Line Mechanics Association announced the signing of its third airline agreement on August 16 with Chicago and Southern Air Lines. Previously agreements were signed with American and Hanford airlines.

The third agreement results in a total wage increase of 16 per cent for all employees in the mechanics classification and up, an 18.6 per cent increase or approximately \$24.54 per month.

Other features of the plan are: overtime compensation of time and one-half, retention of monthly salary pay plan; scale bargaining rights; establishment of a bidding system for jobs in the higher brackets, classification of the employees by mutual agreement between the shop committee and management prior to establishment of rates for the brackets; two weeks vacation with pay; creation for the first time with the company of a longevity pay plan.

Another feature is that the Junior Mechanic classification is eliminated, meaning that no mechanic receives less than seventy cents per hour, if figured on the hourly basis. However all salaries are retained on the monthly pay basis.

A. P. Martin, ALMA president, said: "The time is approaching rapidly when the operators and the association of their employees, both pilots and mechanics, will be expected to give serious consideration to the establishment of the National Aircraft Adjustment Board as is set forth in the provisions of the Railway Labor Act as amended in April, 1936."

### CIO WINS AT NORTHPROP

#### Defeats Independent Union; Start Drive For Closed Shop

Los Angeles, August 20.—United Automobile Workers' Union, C. I. O., was yesterday selected by the employees of Northrop Aircraft Corporation's El Segundo plant as their representative in collective bargaining. The Aircraft Workers' Union, an independent organization, was opposing the C. I. O., but the vote was 551 to 138 against it.

The National Labor Relations Board ruled that only 671 out of the 1,450 workers were eligible to vote. Eighty more, whose status was considered questionable, were permitted to vote, subject to protest.

Charles Hollinshead, president of Local 229 of the UAW, said the union would immediately start a drive for a closed shop at the Northrop plant.

### Personals

Buster Warner is now working as pilot and sales representative for Waco Sales of New York, Inc., Waco distributors with headquarters in Hangar 16, Roosevelt Field. Warner was formerly employed by Erickson and Rommert at Floyd Bennett Field. Miss Annette Gibson, popular aviatrix, was married in July to E. T. Magoffin. Mrs. Magoffin operates a hangar at Roosevelt Field, which is managed by her brother.

### MIAMI AIR MEET

#### To Be Held Dec. 2-5; Plan Race From N. Y.

Miami, August 21.—The Greater Miami Airport Association has selected December 2 to 5 as the dates for this year's Miami All-American Air Manuevers. The city commission yesterday accepted the dates and authorized expenditure of \$9,000 out of the \$10,000 aviation promotion fund in the publicity budget for the air races.

A national survey, conducted by R. V. Waters and B. B. Freeland of the airport association, shows that the dates will be satisfactory for manufacturers and pilots. This will be the tenth annual air race program in Miami.

Waters stated that a race from New York to Miami is planned as one of the pre-opening features.

### EAL CUTS SCHEDULES

#### Six Daily Trips Eliminated New York-Washington; Economy Wave on

Eastern Air Lines has cut its daily schedules between Washington and New York from 20 to 14, thus ending for the time being "the world's busiest air traffic route" with schedules every hour on the hour almost all the way around the clock. Eastern blames the airport controversy in Washington for a drop in business. Newspapers have been filled daily with screaming headlines calling the airport inadequate and dangerous. Hasn't helped biz. Also, railroad schedules have been shortened greatly, one train making the run in a little over three hours.

Eastern has also experienced a rather drastic economy wave with men let out all along the line on all divisions. It is not known how many were let out.

### MICHIGAN AIRWAYS MAP

#### 1937 Edition Published Along With Airport Booklet

The Michigan Department of Aeronautics, of which Col. Floyd Evans is director, has just issued a new official Michigan Airway Map, complete in every detail and showing landing fields, beacons, seaplane ports, state police radio towers, airport radio stations, altitudes, radio ranges and other important features.

The department has also issued a booklet describing every airport, landing field and intermediate field in the state, which is supplemented by airport condition notices issued frequently. There is a diagram for each field, showing roads, runways, obstructions, location of wind indicator, hangars, etc.

The airway map is on sale for fifty cents and may be secured by writing to the Michigan Department of Aeronautics, Municipal Airport, Lansing, Michigan.

### Aeronautical Charts

The U. S. Coast and Geodetic Survey Department of Commerce, has issued the following new sectional aeronautical charts. These cancel previous editions. Pilots are warned against using obsolete charts. All sectional charts are scaled at 1:500,000 and priced at 40 cents each, with a discount of 33 1/3 percent on orders, including assortments, grossing \$10 or more.

El Paso—July 1937. Size 20 by 47 inches. This edition shows changes in beacon site numbers and other aeronautical data.

Savannah—June 1937. Size 20 by 46 inches. Changes in aeronautical data with the addition of a portion of the new lighted airway Atlanta, Ga., to Charleston, S. C.

### TWA-PCA Deal Off

Possible purchase of Pennsylvania-Central Airlines by Transcontinental & Western Air, Inc., recently brought into prominence by a series of conferences of officials of TWA with some of the financial interests in PCA, is all off, according to authentic information. The matter was dropped about as rapidly as it took shape shortly after the air mail bids were announced in July. It is understood that some stockholders of PCA were interested in selling and approached TWA but that after one or two meetings any thought of a deal was abandoned and is not likely to be revived.

### Hughes' Sikorsky

Howard Hughes' new Sikorsky S-43 in which he plans a globe-circling trip in record time, will have a 400 watt voice transmitter with a 100 watt auxiliary transmitter for code so that the radio technician can work New York City from any point in the world, according to Clancy Dayhoff's TWA News Letter under date of August 19. A crew of five will be aboard and the ship will have a gross load of 30,000 pounds, 16,000 pounds empty. It is being equipped for 2,000 gallons of gasoline and when the ship lifts it will wing off with 5,000 more pounds than the ship ever took off with before.

### Baltimore-Pittsburgh

Pennsylvania-Central Airlines is planning to apply for an off-line passenger and express service between Baltimore and Pittsburgh when its new Washington-Buffalo route is in operation, according to published reports. Despite newspaper articles appearing in Baltimore, however, the line has not made formal application to the Post Office and the Post Office has not approved such a route, it was learned in Washington.

## NEW! UNITED'S SLEEPER PLANES COAST TO COAST

15 1/2 HRS.



None faster... none so fine

THE NATION salutes United's new Douglas-built Mainliner sleeper planes... now in regular *overnight* service coast-to-coast on the "Main Line"—the nation's pioneer air-way.

Leave New York in the evening... breakfast in California next morning. Sleep in full-size berths in air-conditioned cabins. Arrive fresh—ready for business. Fly United—120 million miles experience and the latest type equipment.

### RESERVATIONS:

Any United Air Lines Ticket Office, Hotels, Travel Bureaus, Telegraph Offices

**UNITED AIR LINES**

## AIRPORT PERSONNEL COMPLETED BY BAC

### Major McMullen Announces Complete Set-Up for Airport Work With Field Offices Listed

Major A. B. McMullen, chief of the airport section of the Bureau of Air Commerce, has announced the completed personnel for his section following reorganization since he assumed his post some months ago. Relatively few changes in personnel have been made but a general tightening of the organization has been effected.

The complete line-up as of Aug. 23 was:

Chief—Major A. B. McMullen  
Assistant Chief—Fred H. Grieme  
Administrative Officer—S. A. Kemp

#### Engineering

Senior Engineer—William M. Aldous  
Project Control—C. B. Donaldson  
Paving—C. L. Wilksy  
Lighting—H. J. C. Pearson  
Seaplane Facilities—Robert L. Campbell  
Airmarking—Robert L. Campbell  
Tests, Experimentation and Design—Vacant

#### Administrative

Administrative Officer—S. A. Kemp  
Progress and Statistics—Vacant  
Survey and Planning—J. B. Bayard, Jr.  
Finances and Accounts—L. Sherr  
Personnel—L. Sherr

#### Region 1

Park Square Building, Boston  
Regional Supervisor—Hervey F. Law  
Mass., R. I., Conn., Maine, Vt., N. H.

#### Region 2

Room 907, 265 West 14th Street,  
New York City  
Regional Supervisor—W. H. Hooker  
District 1, Penna., W. Va., Md., A. H.  
Wessel, district adviser, 12 South 12th  
St., Phila.

District 2, New York, N. J. and Del.,  
C. B. Coombs, district adviser, Room  
907, 265 West 14th St., New York City

#### Region 3

927 Canal Bank Building, New Orleans  
Regional Supervisor—E. M. Haight  
Airmarking—Blanche Noyes

District 1, Va., N. C., S. C., T. W. Mil-  
ler, district adviser, Municipal Air-  
port, Columbia, S. C.

District 2, Ga., Fla., P. Moore, district  
adviser, 10 Forsythe Building, At-  
lanta, Ga.

District 3, Ala., Miss., La., S. E. Tra-  
vis, district adviser, 927 Canal Bank  
Building, New Orleans

District 4, Ark., Tenn., Okla., Tom E.  
Flaherty, district adviser, 328A, Fed-  
eral Building, Little Rock, Ark.

District 5, Texas, D. H. Reed, district  
adviser, 2204 S. Y. T. Building, San  
Antonio, Texas

#### Region 4

2202 Merchandize Mart, Chicago  
Regional Supervisor—A. H. Wait  
District 1, Mich., Ind., Ohio, Ky., M.  
C. Hoppin, district adviser, 2202  
Merchandize Mart, Chicago

District 2, Ill., Iowa, Kan., Mo., Neb.,  
J. H. Dubuque, district adviser, 2202  
Merchandize Mart, Chicago

District 3, Minn., Wis., N. D. and  
S. D., W. B. Todd, acting district  
adviser, 2202 Merchandize Mart,  
Chicago

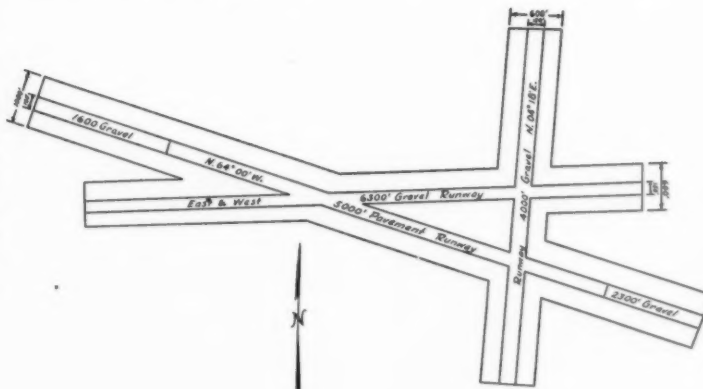
#### Region 5

210 Kearns Building, Salt Lake City  
Regional Supervisor—Earl C. Popp  
District 1, Utah, Col., Nev., Wyo.,  
E. G. Barry, district adviser, 210  
Kearns Building, Salt Lake City

District 2, Calif., N. M., Ariz., A.  
Ayres, district adviser, 470 Monadk  
Building, San Francisco

District 3, Wash., Ore., Idaho, Mont.,  
Paul Morris, district adviser, 1001  
Bedell Building, Portland, Ore.

## Titan Among Airports—8,800-Foot Runway



Boise, Idaho, can lay claim to having one of the longest runways in the world—8,800 feet, of which 5,000 feet is to be paved. The airport is moving rapidly toward completion and is located on a "bench" outside the city with no obstructions of even a few feet for many miles. The runways will have usable widths of 1,000 feet. The main mile-and-a-half runway is usable 90% of the time. The above diagram gives a complete outline of the plans. The field will be completed by spring. The airport will take care of Boise's needs for as far into the future as anyone cares to predict.

## TENTH ANNIVERSARY

### Busy K. C. Airport to Be Improved Following "Birthday"

Kansas City, August 17.—Ten years ago today was the date of the first official landing of a passenger plane at Kansas City Airport. Charles A. Lindbergh landed his Spirit of St. Louis here the same day.

Today 18 air liners land at the airport daily. Last year 61,317 revenue air travelers were registered at the terminal building as either arriving, departing, or stopping. The daily average of air passengers at present is from 120 to 160.

Transcontinental and Western Air and Hanford Airlines have bases here, while Braniff Airways operates through here on its Chicago to the Gulf of Mexico route.

The airport is to undergo extensive improvements. A \$1,000,000 bond issue was voted at the last general election. Next month, concrete runways will replace the present cinder runways and a modern terminal building will be constructed.

The *Kansas City Star* makes the comment: "Ten years ago a swampy field—today an active airport and an important part of the city's business life. A full grown businessman at the age of 10."

## HAZARDS AT CHICAGO

### DC-3 Almost Crashes Into Freight Car at Municipal Airport

Airline officials are becoming more and more concerned with the hazards at Chicago Municipal Airport. Unless the railroad tracks which cut the field in half are removed at an early date, they fear a major crash will result. The problem has become acute with addition of more and more twenty-one passenger DC-3's by various airlines using the terminal.

On Aug. 19, a DC-3 missed crashing by a miraculous hair's breadth. The pilot overshot his mark and attempted to go up and come in again. Having had flaps and wheels down, the engines labored and the plane just barely cleared a string of freight cars on the tracks. Probably only the fact that the wheels were being retracted at the moment saved the plane from hitting the freight cars. About a week before that another DC-3 had almost

## PENNA. LEADS WPA AIRPORT SPENDING

### Accounts for One-sixth Total Federal Expenditures of Relief Agency for Landing Fields

Airport projects totaling 940 had been placed in operation by the Works Progress Administration by June 30, according to a report issued by the W.P.A. on August 15.

Total Federal expenditures of W.P.A. for airports and airways through June 30, as reported by the Treasury Department, were \$63,710,642. Local government agencies sponsoring the various projects had contributed \$6,851,544.

The estimated Federal cost of projects placed in operation amounts to \$81,836,254, while a total of 1,005 projects have been selected for operation since the start of the program.

The report shows Pennsylvania far in the lead as regards Federal expenditures, amounting to almost one-sixth of the total for the entire total. This has been accomplished chiefly within the past year, with that state surpassing the former high totals held by Florida and Michigan. California and Florida rank high.

### Works Progress Administration, Engineering Division

#### DIVISION OF AIRWAYS

### Airways & Airport Projects Placed In Operation By WPA State Administrators as of June 30, 1937

#### RECAPITULATION

State	Airport Sites	No. of Projects	Federal Expenditures	Hours of Employment
U. S. TOTAL	567	940	\$63,710,642	89,076,515
Alabama	14	24	1,061,279	1,999,312
Arizona	4	8	126,706	202,672
Arkansas	3	6	148,184	300,600
California	28	55	8,205,832	6,582,192
Colorado	7	14	616,394	1,015,175
Connecticut	5	13	1,158,039	1,587,988
Delaware	0	0	0	0
Dist. of Columbia	1	1	114,777	235,636
Florida	50	72	1,869,439	4,179,128
Georgia	19	24	862,322	2,025,934
Idaho	5	5	115,658	156,377
Illinois	9	23	2,457,175	3,508,175
Indiana	12	19	1,259,856	1,816,109
Iowa	5	6	120,446	228,725
Kansas	6	8	235,601	493,889
Kentucky	3	5	75,625	145,102
Louisiana	7	10	367,085	787,196
Maine	11	22	803,545	1,540,097
Maryland	2	4	79,374	133,884
Massachusetts	9	34	1,671,121	2,062,100
Michigan	60	73	1,690,288	2,886,388
Minnesota	11	16	669,088	863,568
Mississippi	21	32	973,202	1,424,442
Missouri	6	14	516,070	1,006,037
Montana	18	26	257,947	296,216
Nebraska	5	11	1,045,653	1,618,335
Nevada	4	6	60,729	60,686
New Hampshire	4	13	387,694	659,840
New Jersey	6	17	2,209,703	2,595,227
New Mexico	2	2	61,628	125,895
New York City	2	3	4,564,214	5,336,435
New York State	25	33	2,128,879	3,547,478
North Carolina	12	19	1,028,436	1,633,029
North Dakota	4	11	107,411	153,065
Ohio	12	34	5,098,121	7,025,834
Oklahoma	7	9	265,162	456,474
Oregon	15	21	1,791,528	2,542,165
Pennsylvania	29	37	10,847,821	15,131,939
Rhode Island	3	4	59,564	122,970
South Carolina	12	24	1,063,877	1,937,123
South Dakota	8	11	220,540	442,535
Tennessee	8	28	3,181,849	3,369,256
Texas	22	27	494,033	1,209,940
Utah	6	17	687,173	825,635
Vermont	4	9	130,249	311,245
Virginia	11	17	291,654	728,761
Washington	22	31	1,024,890	1,456,410
West Virginia	7	9	560,894	938,014
Wisconsin	11	19	635,985	700,758
Wyoming	5	8	140,134	210,779
Hawaii	5	6	166,779	439,785

the same experience except that it barely cleared buildings at another side of the airport. Flaps were down when the pilot decided to try it again.

### Knight to Chile

Clayton Knight, well known aviation

artist who draws Capt. Eddie Rickenbacker's "Ace Drummond" and "Hall of Fame," boarded a Grace Liner, the Santa Clara, on August 21 bound for Chile to gather material for a book, and also to gather information on Latin American pilots.



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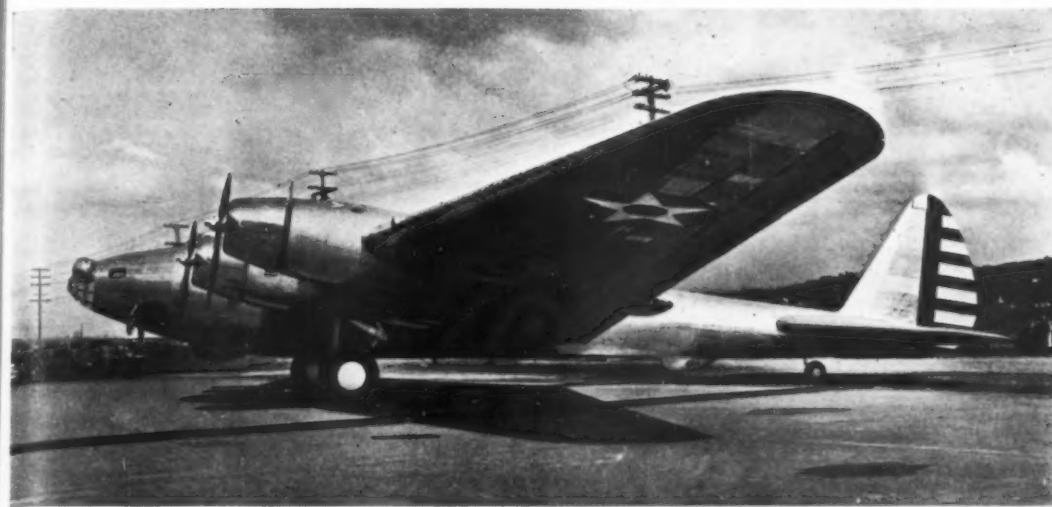
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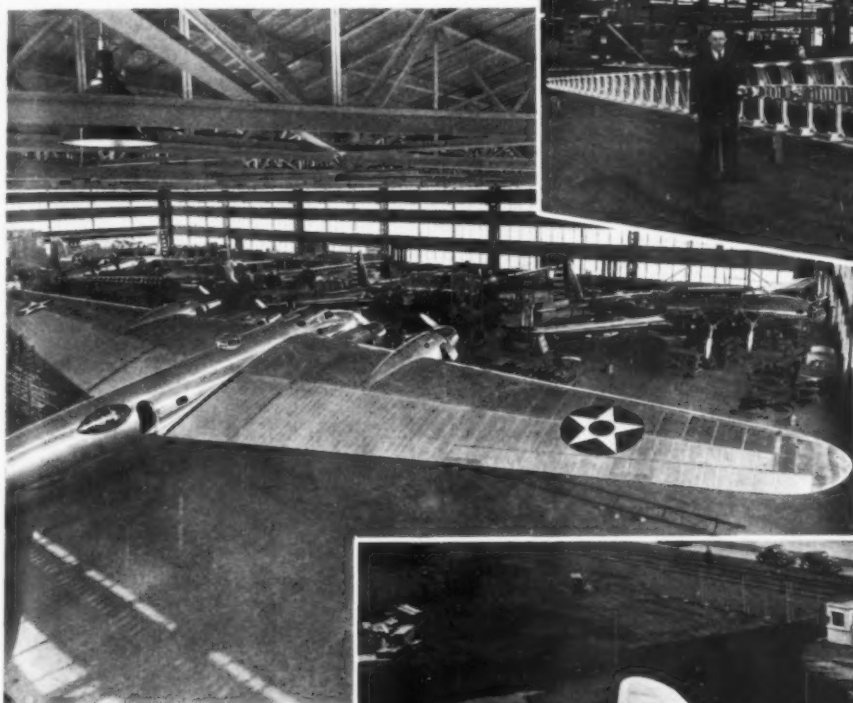
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The XB-15, above, big brother of "The Flying Fortress" YB-17 bombers, weighs about 20 tons, has a wing spread of 105 feet, and is powered by four 1,000 h. p. engines.

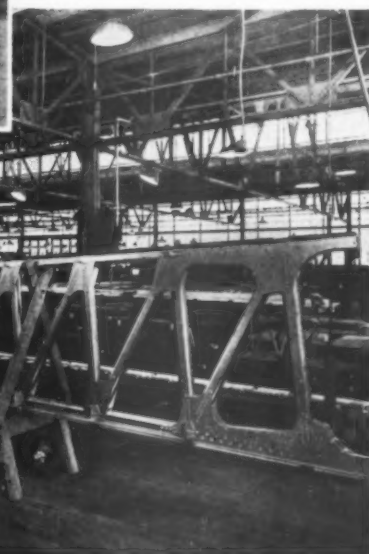


Just to give you a hint of the size of the XB-15, the above photo shows the experimental Air Corps plane before being taken out of the assembly room. The "small" planes in the background are the four-engine YB-17's which were rated as the biggest of their kind.

Ready for test flying, the XB-15 is the latest in super-bombers. The photo at right shows the enormous wing spar. The XB-15 is four tons heavier than the "Flying Fortress" type, is powered by Pratt and Whitney engines, and is complete in every detail. Performance characteristics have been carefully guarded. The huge military weapon has been underway for three years and represents 670,000 man-hours of work in the making.

## The Quest for Size

(Glimpses at the Boeing Airplane plant at Seattle).



Wing spar evolution: Above photo shows contrast between the wing spars for the largest Boeing—the Clipper now under construction for Pan American Airways with a wing span of 152 feet—and the smallest, built for the Boeing single-seater P-26A Army Air Corps pursuit plane. Holding the spar are Ernest Orthel (left), wing shop foreman, and D. P. Adams, Boeing shop clerk.



## NEW LOCKHEED 14 TRANSPORT TESTED

Speedy 11-Passenger Plane Readied  
for Northwest Air Lines, Others  
to Follow

The first of Lockheed's new transports—model 14—began test flights early in August preparatory toward delivery of the first of a series of the new eleven-passenger ships to Northwest Air Lines.

With Marshall Headle, Lockheed's chief test pilot, at the controls, the first ship was wheeled out of the assembly room on July 29 and after final inspection took off from the company's private landing field at 5:20 p. m. and landed at Burbank Air Terminal, a mile away, after an hour in the air. C. L. Johnson, research engineer, accompanied Headle on the initial test flight.

The first landing was accomplished at an indicated air speed of 47 miles per hour, the company said, through use of the new Fowler-type wing flaps.

Although delivery of the first plane had been postponed considerably after the expected date, deliveries are expected to go forward at steady pace. Northwest Air Lines has awaited the new ships with much interest, accompanied by an excellent press through Northwest's Chicago-Seattle territory. The 14's will establish new speed precedents on this line and will make possible for the first time express service with the ten-passenger Electras making the smaller stops.

Jim Griffin, public relations maestro for Lockheed, has released complete descriptions of the Model 14, which is rated as the world's fastest transport. Top speed is expected to reach 250 miles per hour, with a cruising speed of 225 m. p. h.

Providing accommodations for eleven passengers, two pilots and stewardess, the 14 is equipped with reclining and swivelling chairs. Reading lights, ash receptacles and push buttons for calling the stewardess, now standard in all transports, are provided.

For baggage, mail and express, the fuselage nose compartment has a volume of eighty-two cubic feet, while compartments below the cabin floor have capacities of forty-two, twenty-six and forty cubic feet respectively.

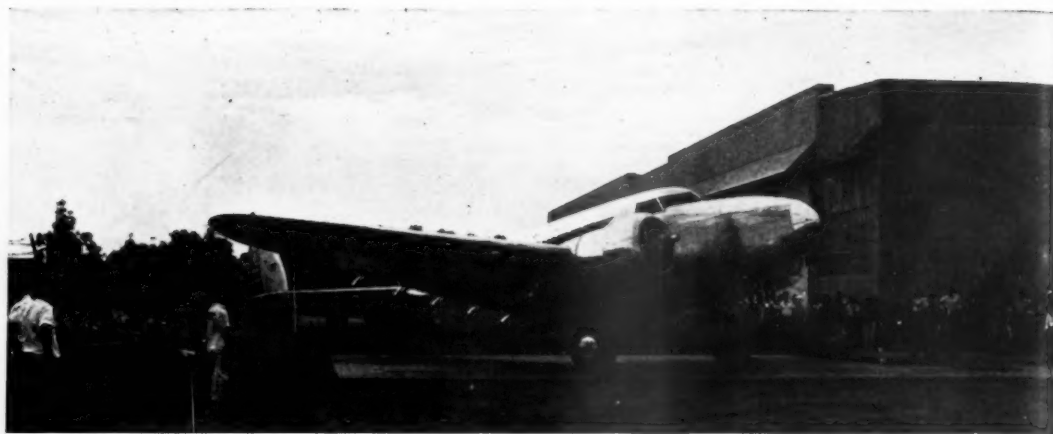
The cabin is soundproof with Seapak, a non-hygroscopic, non-inflammable material, having the highest sound absorption qualities of any material available for use in present-day aircraft.

### New Type Flaps

Like the Electra, the 14 has twin vertical tail surfaces providing operating stability. The fuselage is constructed of 24ST Alclad aluminum alloy throughout. It is a semi-monocoque structure.

Perhaps the most important innovation on the 14 is the use of Fowler-type trailing edge wing flaps. Located on the under surface of the wing, the flaps are operated hydraulically and controlled by the pilot. This type of flap is said to offer advantages over the conventional split-flap used extensively in the past.

The principal effect of these flaps is to increase the maximum lift coefficient without increasing the vertical sinking speed. The flaps also permit shorter take-offs with steeper climb after take-off for clearance of obstacles. This increase in lift is not accompanied, as in the case of the split flap, with so large an increase in drag. This further facilitates their use for take-offs. With the Fowler flap, it is possible, the company says, to carry a much larger load for a



The Lockheed 14 Before its Initial Test Flight

given wing area than with the split flap type.

The 14 is powered by two nine-cylinder radial aircooled Pratt & Whitney Hornets producing 850 h. p. at take-off. Total length is forty-four feet three inches, and wing span is sixty-five feet six inches.

### Brazilian Line Orders

#### Ten 14's, Report Says

Word from Rio De Janeiro, Brazil, on August 17, stated that the Lockheed Corporation signed a contract to build ten of the Model 14 transports for the Brazilian Air Transport, the planes to be used in the service between Rio and Asuncion, Paraguay, via Sao Paulo and Curitiba, Brazil.

### Lockheed 14 Rated World's

#### Fastest Transport in Test

Santa Ana, Calif., August 18.—Lockheed's new Model 14 transport sped today more than 250 miles per hour over a measured mile course to achieve the official Department of Commerce rating as "fastest transport in the world." The plane is about thirty miles an hour faster than any other transport made, Marshall Headle, chief Lockheed test pilot, and C. L. Johnson, research engineer, were at the controls. It was also reported today that the Netherlands government has placed an order for this type of transport.

## NEW YAKIMA SERVICE

### Northwest Airlines Begins Off-Line Schedule; Officials Present

Yakima, Wash., Aug. 10.—Northwest Airlines began serving Yakima on an off-line schedule today with the arrival of the first east-bound transport piloted by Frank Judd and copilot E. J. Corrigan. For the time being Yakima will be served only by a daily east-bound schedule.

A crowd of 2,000 was on hand for the arrival, while civic officials were present to dispatch the first air mail and express out of the city bound for points east. Heading the local welcoming group was Mayor Harry C. Temple, and W. R. Anderson, president of the Chamber of Commerce. Dr. H. H. Skinner, chairman of the C. of C. aviation committee, made arrangements for the program.

Northwest Airlines had a number of its officials at the field, including A. G. Kinsman, of Seattle, west coast traffic manager; F. R. Erickson, of St. Paul, general traffic manager; Arthur Anderson, of Seattle, publicity manager; and W. S. Burton, Yakima manager. F. W. Whittemore, vice-president—operations, is expected to visit Yakima shortly. Daily westbound service is planned for a later date.

## SUMMARY OF PERFORMANCE OF LOCKHEED MODEL 14-H FOR 15,000 LB. AND 17,000 LB. GROSS WEIGHTS

GROSS WEIGHT	15,000 Lbs.	17,000 Lbs.
<b>TAKE-OFF AND LANDING</b>		
*Take-off run at Sea Level in Still Air With Flaps (Using 850 BHP/Eng.)	600 Ft....	775 Ft.
Take-off Time at Sea Level in Still Air With Flaps (Using 850 BHP/Eng.)	12 Sec....	14 Sec.
Take-off Run at Sea Level in Still Air Without Flaps (Using 850 BHP/Eng.)	750 Ft....	985 Ft.
Take-off Time at Sea Level in Still Air Without Flaps (Using 850 BHP/Eng.)	12 Sec....	14 Sec.
Landing Speed At Sea Level in Still Air With Flaps	65 M.P.H.	68 M.P.H.
Distance Required to Clear a 50 Ft. Obstacle from standing Start (850 BHP/Eng.)	1,400 Ft....	1,575 Ft.
Distance Required to Stop After Clearing 50 ft. Obstacle (With Brakes and Flaps)	1,275 Ft....	1,400 Ft.
<b>CLIMB AND CEILINGS</b>		
Maximum Rate of Climb at Sea Level (Wheels up) (715 BHP)	1,410 Ft./Min.	1,120 Ft./Min.
Maximum Rate of Climb at 6,700 Ft. (Wheels up) (760 BHP)	1,510 Ft./Min.	1,235 Ft./Min.
Maximum Rate of Climb at 10,000 Ft. (Wheels up)	1,165 Ft./Min.	920 Ft./Min.
Absolute Ceiling (With Two Engines)	26,000 Ft....	23,100 Ft.
Service Ceiling (With Two Engines)	24,300 Ft....	21,600 Ft.
*Absolute Ceiling (With One Engine)	10,000 Ft....	6,500 Ft.
Absolute Ceiling (With One Engine) With 14,000 lb. load	12,000 Ft....	12,000 Ft.
<b>RANGE</b>		
Fuel Consumption Using 525 BHP/Eng. (.48 lb./BHP/hr.)	84 Gal./Hr.	84 Gal./Hr.
Fuel Consumption Using 450 BHP/Eng. (.46 lb./BHP/hr.)	69 Gal./Hr.	69 Gal./Hr.
Fuel Consumption Using 375 BHP/Eng. (.44 lb./BHP/hr.)	55 Gal./Hr.	55 Gal./Hr.
<b>SPEEDS</b>		
Maximum Speed at Sea Level Using 715 BHP/Eng.	229 M.P.H.	227 M.P.H.
Maximum Speed at 6,700 ft. Using 760 BHP/Eng.	249 M.P.H.	247 M.P.H.
Cruising Speed at Sea Level Using 525 BHP/Eng.	203 M.P.H.	200 M.P.H.
Cruising Speed at 5,000 ft. Using 525 BHP/Eng.	212 M.P.H.	208 M.P.H.
Cruising Speed at 10,000 ft. Using 525 BHP/Eng.	221 M.P.H.	217 M.P.H.
Cruising Speed at 12,000 ft. Using 525 BHP/Eng.	224 M.P.H.	220 M.P.H.
Cruising Speed at Sea Level Using 450 BHP/Eng.	190 M.P.H.	187 M.P.H.
Cruising Speed at 5,000 ft. Using 450 BHP/Eng.	198 M.P.H.	194 M.P.H.
Cruising Speed at 10,000 ft. Using 450 BHP/Eng.	206 M.P.H.	201 M.P.H.
Cruising Speed at 12,000 ft. Using 450 BHP/Eng.	209 M.P.H.	204 M.P.H.
Cruising Speed at 14,000 ft. Using 450 BHP/Eng.	212 M.P.H.	207 M.P.H.

\*Take-off rating is 850 BHP at 2500 RPM with engine geared 3:2.  
\*\*Engines rated at 800 BHP at 2300 R.P.M. up to 6000 ft. altitude for single engine emergency climb.

## 36 Inspectors Added to Bureau Service

The Bureau of Air Commerce is expanding its general inspection service by thirty-six aeronautical, factory and junior inspectors, Richard S. Boutelle, chief of the service, announced August 19.

The present number of inspectors is sixty-nine, the increase amounting to a third. All selections have been made but final interviews by the personnel board were yet to be effected. All thirty-six men should be at work within a month and the names will be announced later.

Two new aeronautical inspectors were recently added to the force. They are R. O. Lindsay, former director of aeronautics for Tennessee, and Ernest S. Hinsley, of Florida. Mr. Lindsay has for some years been a prominent member of the National Association of State Aviation Officials.

## Boeing Men Honored

Seattle, Aug. 12.—Robert J. Minshall, chief engineer, Fred P. Laudan, plant superintendent, and John K. Ball, chief stress engineer, all of the Boeing Airplane Company, have been selected to receive the Wright Brothers Medal for 1936, according to word received here from the Society of Automotive Engineers. The award is based on the paper presented by the three men on aircraft design and construction at the SAE meeting in Los Angeles last Oct. 17. The board of award consisted of F. E. Weick, chairman; E. P. Warner and S. Z. Zand.

## Halvorsen Honored

As recognition for his twenty years' continuous service at the Boeing Airplane Company, Seattle, Alfred Halvorsen, foreman of the finishing shop, was presented the twenty-year service award August 12. He is the fifth to receive this award.



## First 75-Passenger Boeing Clipper Moving Toward Assembly Stage

Pan American Airways released on August 20 a progress report on construction of the six huge "Flying Clipper Ships" which the Boeing Airplane Company is building at its Seattle plant for the airline.

Pointing out that the 42-ton clippers are the first aircraft ever to be built by strictly ship-building methods, Pan American reports that the first of the Boeings is rapidly reaching the point where it can be moved outside the factory walls to an especially constructed out-door drydock for first assembly. This drydock is connected to an inclined ramp leading into the water, down which the completed clippers will "slide down the ways" like seagoing boats.

Each clipper is being built in two steps. The first is the jig stage inside the factory, where the frames are mounted in docks more than 100 feet long, 30 feet wide and 35 feet high.

At the outdoor dock the 152-foot wing, so large that it provides a gangway leading to each of the four motor housings, will be fitted to the 100-foot hull. A special crane is mounted for the engine assembly—the engines to be four 1500 horsepower Wright Cyclones, most powerful aircraft motors developed in the U. S. to date.

Construction of the clippers is the biggest job ever tackled by a domestic manufacturer and is on such a large scale that it represents almost an introduction into a new era of aircraft building. A score of jigs have been installed within the factory for various sub-assemblies—all set in concrete with meticulous care as to measurements and alignments. Rivet holes are drilled by a traveling drill which moves around the jig on rails, and drills the holes vertically with a precision which could not be obtained by hand operations.

The Boeing clipper is designed to carry 75 passengers for daylight flights and 50 passengers over the Atlantic on 24-hour schedules. It is twice the size of the next largest clipper, the Martin boat, and will be rated as a "three-decker."

Perhaps the best comparison of size is that it will be larger than the small-

est of Christopher Columbus' sailing boats in which he reached America. Top speed is estimated to be in the neighborhood of 200 miles per hour, with a cruising speed of 150 miles per hour. Each clipper will have a crew of ten with complete living quarters aboard. Cruising range is estimated to be 3,200 miles.

One important innovation is that the four engines will be accessible for servicing and inspection in flight by means of a catwalk which runs through the wing with entrances to each motor section.

### ATC TO FLEETWING

#### Stainless Steel Amphibian Passes Tests; Commercial Production Underway

Bristol, Pa., August 12—The Department of Commerce has given an Approved Type Certificate to Fleetwing, Inc., for its new stainless steel Sea Bird Amphibian, it was announced today by Carl de Ganahl, president of the company, and K. B. Walton, vice-president. The Sea Bird, the first stainless steel airplane constructed for the commercial market, holds ATC 2-450.

The plane for which the certificate has been received is the original F-401 Sea Bird, launched last fall and which has since been sold to a Canadian gold mining company in British Columbia. Fleetwing has already laid plans to make the first production lot of stainless steel airplanes in the history of the aviation industry. Five are now being built, and the first model, known as F-5 Sea Bird, is rapidly nearing completion.

This model will have a new moulding Flexiglas window shield which will further increase the speed over the top speed of 150 miles an hour achieved on the model F-401 with the 285 horsepower Jacobs engine.

### Chile to Buy Planes

Santiago, Chile, August 10—Chile is to spend \$4,000,000 for the purchase of navy and army planes from Italy and Germany. The Aviation Council approved the project yesterday.

## National Air Races—Sept., 3-6

Cleveland, O., August 27—Aviation executives, pilots, technicians, national and foreign dignitaries, and thousands of other spectators will meet at Cleveland Municipal Airport September 3 to 6, inclusive, to witness the 1937 National Air Races.

The Races carry \$81,800 prize money and it is expected that records will be broken in all three main events: the Vincent Bendix Trophy Race, free-for-all transcontinental speed test from Los Angeles to Cleveland Airport; the Charles E. Thompson Trophy Race, a closed course race; and the Louis Greve Trophy Race, for motors of 549 cubic inches or less.

Speed runs have been completed on the new Seversky "mystery plane" built for Frank Fuller, west coast pilot who expects to enter the Bendix and the Thompson races.

The Races will mark the first appearance of the Pratt and Whitney twin-row engines in the annual speed classic. Roscoe Turner, Frank Fuller, and Earl Ortman are among the pilots who will use this type engine.

Fighting Squadron Five, U. S. Navy, will give demonstration flights, using 18 single-seat, fighting type planes, while the Navy's Bombing Squadron One will give exhibitions. Army and Marine Corps planes are expected to be on hand also.

Michael Detroyat, French ace who last year established a record of 264.261 miles an hour in the Thompson Race will attend the Races as a spectator this year. His racing plane has not been completed in the Renault plant in France.

## American Must Resume W. Va. Air Mail

On representations made by West Virginia interests, the Post Office Department has notified American Airlines that it must resume air mail service to Charleston and Elkins in that state on September 1st, it was learned August 24th. American Airlines some weeks ago replaced tri-motored Stinson A's with Douglas DC-2's and eliminated stops at those cities because the airports are not adequate for Douglas transport operations. The West Virginia interests protested to the Post Office Department that this elimination represented a violation of the original air mail contract. The Post Office has told American Airlines to resume service with smaller planes and to notify Charleston and Elkins that those cities must enlarge their airports to accommodate larger and faster transports.

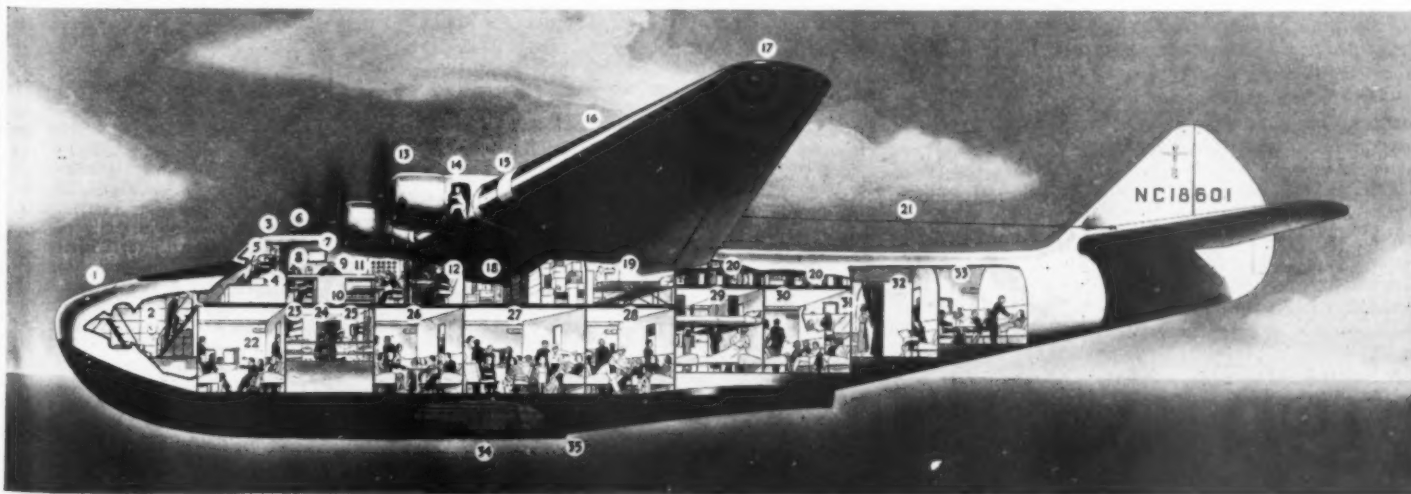
Unofficially, the Post Office is attempting to get the airlines to give notification six months in advance of changes of equipment in order to ease a growing tension between cities and airlines over the matter of equipment and airports. Post Office view is that cities must accept some measure of responsibility in keeping airports apace with faster and larger equipment, but that airlines should give some advance notice when intending to replace small transports for larger ones which cannot land safely at certain fields. It is understood the order to American to resume service in West Virginia is not permanent, but merely to bridge the gap pending decisions to enlarge the fields.

## Copy of Magazine Found Floating

Among the few remains found after the crash of the Pan American-Grace clipper into the sea August 2d near the Canal Zone was a water-soaked copy of the June 1st issue of AMERICAN AVIATION, found floating in the water near a half-finished letter written in pencil and a few splintered fragments of the plane.

## Al Goes into Tight Spin, Hurts Knee

New York, August 23—Seeking the security of a Pullman when the weather seemed too dangerous to fly home last night, Major Al Williams, well-known speed and test pilot, "cracked up" by falling two feet from his berth while enroute from Pittsburgh to New York. He suffered a cracked knee cap and was treated at a hospital here. This was front page news for the papers. Al will probably never live it down.



The drawing provides the first glimpse of how the Boeing clipper will look when completed. The cutaway diagram was made from factory plans.

(1) Anchor Hatch. (2) Seaman's Compartment. (3) Bridge (where the flying controls of the liner are located). (4) First Pilot. (5) Second Pilot. (6) Radio Direction Finder "Loop." (7) Navigation Compartment. (8) Radio Officer's Post. (9) Chart Room—Navigator's Post. (10) Map Case, Marine Library, Drift-Sight Bombs, Flares and Navigational Instruments. (11) Engineering Officer—and the Mechanical Engine and Aircraft Controls. (12) Captain's Office. (13) 1500 H.P. Wright "Cyclone" engines equipped with Hamilton constant speed, automatic adjusting propellers. (14) Mechanic's Wing Station. (15) Controllable Landing Lights. (16) Wing Spread 152'. (17) Navigation Lights. (18) Main Cargo hold which extends into wing. (19) Crew's Sleeping Quarters. (20) Luggage Holds. (21) Over-

all Length of Ship 109 feet (Height 28' 6"). (22) First Passenger Compartment, with accommodations for 10 persons. (23) Spiral Staircase to bridge. (24) Men's Retiring Room. (25) Galley in which two stewards can work simultaneously and where food can be prepared for 85 persons. (26) Second Passenger Compartment with accommodations for 10 persons. (27) Dining Lounge with accommodations for 15 passengers. (28) Third Passenger Compartment with accommodations for 10 persons. (29) Fourth Passenger Compartment with accommodations for 10 persons, illustrating method of making up berths for conversion of airliner into ocean sleeper. (30) Fifth Passenger Compartment for ten persons. (31) Ladies' Dressing Room. (32) Sixth Compartment. (33) Private Cabin Suite. (34) Fuel pumps for transferring fuel from sea-wings to wing tanks. (36) Auxiliary Hold.

## AMERICAN AVIATION

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### FORTNIGHTLY REVIEW

(Continued from page one)

could remain in romantic supremacy, when a growing nation was demanding the faster and cheaper passenger, express and freight service that the railroad made possible, while mail carrying gradually became a valuable by-product of the rail transportation business.

Then there is the national defense angle to aviation development, just as there has been the national defense angle during the development of waterways and railroads. We wonder if a long-time politician and bachelor, such as Senator McKellar, can sense the feeling of fear and the wish for adequate defense that grips every intelligent mother in this nation as Shanghai air bombing stories bring tragic headlines. How unimportant it must seem to American mothers and fathers at such a time, to have a United States Senator from Tennessee calling "unspeakable" an Interstate Commerce Commission employee who did as he was instructed and went into a conference several nights with the attorneys of operating airlines. (The attorneys had been invited by letter to study and criticize the McCarran-Lea bill, were meeting in a hotel for that purpose, and wanted someone experienced in I.C.C. administration to explain how certain desirable results, in the public interest, could be accomplished.)

But that word "unspeakable"—that's a pretty hard name to call a man just because he meets with other men in a hotel room at night. It may be something that the hotel owners of America will want to take up with Senator McKellar.

Is it true that he is boycotting hotels as a place to hold conferences when government is involved and men are away from their home cities? We wonder if the Senator from Tennessee could furnish us with a statement touching briefly upon what was done after dark each time that he has been in a hotel room since he was first sent to Congress. Would any hotel incident during those years make him "unspeakable" in the eyes of his public?

—Guess we had better stop this train (of thought) and take no chances. Even an elderly bachelor Senator is certainly entitled to—his own private life.

**T**HE first session of the 75th Congress has gone into history without any major aviation legislation passed. From the standpoint of the air transport system, however, the season has been a profitable one. Historic progress has been made in moving the McCarran-Lea Air Carrier Act several steps further toward reality. Much vital data has been placed "on the record." From the standpoint of the manufacturers, the session was excellent, with one major bill in favorable position to pass next session.

From the many pages of fine print pertaining to the McCarran-Lea bill in the Congressional Record during the final week, we have gleaned the following as being exceptionally pertinent:

#### Held in Check

Representative John M. Costello (D. Calif.) in the House August 16th, urging passage of McCarran-Lea Bill—"The complete expansion of existing air transportation facilities cannot be too rapid for the welfare of the country. Such an expansion is being held in check due to the limitation on routes and on mileage, a limitation

that makes the investment of new capital in the industry hesitant and doubtful, because of the uncertainty of successful operation. The tremendous growth of the industry in the past 10 years threatens to be held in check because of the present impossibility of air lines extending their facilities into additional areas by adding new mileage. Whereas in the past the transportation of mails has been the

primary business of the air lines, now commercial freight and passenger transportation are becoming the main source of revenue of the air lines."

#### "Dangerous Elements"

Representative James M. Mead (D. N. Y.), in the House August 16—"I am afraid the gentleman who preceded me fails to understand the practical situation confronting this Congress. I am for aviation, but there is no need for the passage of any general air mail legislation at this time. We have the permanent law of 1934, with amendments adopted in 1935. It is working well. If we should pass an air mail law at this session giving the Interstate Commerce Commission the authority now exercised by the Post Office Department, it would mean that the wholesome regulations written into the permanent air mail law preventing holding companies, involved stock ownership, interlocking directorates, high salaries, and all the other dangerous elements that were eliminated as the result of cancellation would mean but little, and those old financial practices would come back into the system again. If we pass the bill giving added powers to the I. C. C. it will add from five to eight million a year to our air mail costs."

#### History in the Making

Senator McCarran—"Mr. President, in presenting this matter to the Senate of the United States I do so in the light of history in the making of which I have had the privilege of participating, and I take pride in having made as much of it myself as was possible within the period of time I have served in the Senate of the United States."

#### Either Regulation or—

Senator Truman—"It is a question either of regulation for air transportation or a question of no regulation at all. Transportation heretofore has been handled by the Interstate Commerce Commission. Under measures enacted in the last session by Congress, they regulate pipe lines and waterways. It is proposed now to give them charge of the regulation of air transportation. The only way they can become air-minded is to give them experience in the handling of such transportation."

#### No Brushing Terms

Senator McCarran—"Today the Post Office Department in no brushing terms demands entire and absolute control over the air facilities of the country. That brings me to one feature of the subject which to my mind no one who has followed the matter from its inception to the present time can deny—that one man in the Post Office Department, today walking the Halls of Congress, today constituting a lobby here contrary to Executive order, is controlling and dominating the air life of the country. His name was 'Crouley' in Ireland, but it is 'Crowley' in Texas. That man holds the life of air transportation in his hands, and he nowise blushing demands that he control it. We are trying to take it out of his hands and turn it over to a non-political body."

#### "Oppose to the Limit"

SENATOR COPELAND—"I beg the Senator from Tennessee to consider that if he is seeking an audience to hear his argument—and I want to hear it—he will not get it on Saturday. The Senator realizes that a large number of our colleagues are away."

SENATOR MCKELLAR—"And more of them will be away when remaining business in which they are

interested shall have been passed by the Senate. Next week I shall have to be confronted with having to talk for a week, perhaps, to kill this bill, and I do not want to do that. I would rather talk against it now."

SENATOR JOHNSON—"The Senator would not do that now."

SENATOR MCKELLAR—"Mr. President, so important do I consider this bill, and so necessary is it that it shall not become law at this session of Congress, that I am going to oppose it to the limit of my physical ability, and I do not care who knows it. I am very strongly opposed to this bill."

#### Worse Scandal

Senator McKellar—"I wish to say to the Senator from Vermont in all fairness that if the legislation now proposed shall be enacted, in my humble judgment, there will be a worse scandal concerning the air mail, after the contracts come into the hands of these people under the terms of the bill, than there was previously, because then there will be nothing to stop the air mail operators; all the shackles will then be taken off, and all checks and balances will be destroyed. The provisions suggested by the President that were so carefully put into the two laws dealing with air mail will be made nugatory and rendered ineffective. The plans of the Senator from Alabama (Mr. Black), who has already investigated the aviation companies of this country, and who engaged in the preparation of a bill dealing with the subject, will come to naught."

#### Only Two Against

Senator Truman—"The manufacturers, the pilots, every airline company in the United States, and all those who are interested in the progress of the air lines of this country, are for the bill; and almost all the press of the United States is for it. There seems to be only two persons who are against it, namely, the senior Senator from Tennessee (Mr. McKellar) and the Solicitor for the Post Office Department, who, of course, is anxious to retain control of the air lines, and I do not blame him for that. He now has the only control that there is over the air lines in the United States. The lines are not controlled as to rates. They are not controlled in any way whatever except as to safety under the Commerce Department."

#### Familiar Ring

Senator Austin—"As I have listened to the opposition to the bill it has struck me as peculiar. It has a very familiar ring about it. It sounded of fraud and scandal and collusion and spoils meetings, as if to throw enough dirt upon this very carefully prepared bill to smear it in the eyes of Senators who have not had the time to make a careful study of it. I have heard with some disgust the use here of the old, old story that has long since been discredited, that the origin of the present law, the Air Mail Act of 1934, is in the scandal and collusion and wrong and fraud alleged to have been committed in a former administration, by a former Postmaster General and nine contractors, who held the contracts of the United States Government which, in their operation, created the skeleton of all that there is today that can be claimed to be the grandest air-mail system, the grandest air-transport system in all the world. Boast is made of the magnificence of that system by comparison with anything else in the world, and at the same moment it is undertaken to smear the great pioneers who built that system."



## Folks Worth Meeting

**WELLWOOD E. BEALL** has had one of those romantic, meteoric careers as an aircraft engineer which

places a young man long before his prime in the position of charting design into the visionary future. At the age of thirty—he won't be thirty-one until October 26—Beall is the guiding spark behind the 75-passenger clippers which the Boeing Airplane Company is building for Pan American Airways.

At the age of ten he was drawing pictures of airplanes on a drafting board that his father gave him as a birthday present, and thinking about airplanes of the future. He has never stopped thinking about them. His dreams of huge clippers a few years ago when he was in China are coming true today in the Boeing plant at Seattle. Beall is project engineer under R. J. Minshall, chief engineer.

Born in Canon City, Col., the son of a metallurgical engineer, Beall went from high school to the University of Colorado at Boulder and studied mechanical engineering. By the time he had reached his fourth year, his mind turned to airplanes, stimulated somewhat by Lindbergh's trans-Atlantic flight. Leaving Boulder, he went to the Guggenheim School of Aeronautics at New York University, where he received a degree as a Bachelor of Science in Mechanical Engineering and a graduate degree in Aeronautical Engineering.

While at New York University he won third prize in a student design competition sponsored by the Wright Aeronautical Corporation. Earning school money doing research, Beall made a wind tunnel test for the Walter M. Murphy Company Coach Builders of Pasadena, Calif., and when the company's manager met Beall, he offered him a job and Beall packed his bag and left for Pasadena. While employed there as aeronautical engineer and auto body designer, he took his first training as a pilot.

A year later he became an instructor

at the Boeing School of Aeronautics in Oakland. In March, 1934, when the Boeing School was still affiliated with Boeing Airplane Company, he was transferred to the latter company as sales engineer. Then came an assignment to go to the Orient to develop foreign sales. On Aug. 17, his fiancée, Jean Cory, flew from San Francisco to Seattle. On Aug. 18 at 8:30 a. m. they were married and at 11 a. m. they sailed on the Oriental trip that lasted a year.

It was a stimulating year abroad, packed with adventure and thoughts of large aircraft to come. He traveled considerably, sold planes, and returned to Seattle and joined the engineering department of Boeing in January, 1936. He had his designs already sketched for a huge clipper. He persisted until he had sold the company—and the company sold Pan Am. He works with zest, talks with a staccato, and moves from one subject to another without hesitating. Office hours mean little to him. His life is engineering. Once in awhile he gets time to climb into a cockpit, pull back the stick, and take to the upper air.



**C. G. CHADWICK**, traffic agent for the Air Express Division of Railway Express Agency, had a long transportation background before entering his present position in 1932.

Not only did he know transportation thoroughly, but he was more than casually acquainted with aviation, coming as he did from the position as traffic manager for Northwest Airlines, Inc.

Mr. Chadwick began his business career as a telegraph operator with the Minneapolis and St. Louis Railroad Company. Later he served various railroads as agent and traveling and general freight and passenger agent. Before going to Northwest Airlines he was traffic manager of the Minneapolis, Northfield and Southern Railway.



## Aeronautical Bookshelf

All books listed in this department may be purchased through American Aviation

**ZEPPELIN** *The Story of Lighter-than-air Craft*, By Capt. Ernst A. Lehmann. Illustrated. Preface and final chapter by Commander C. E. Rosendahl. \$3.00. Longmans, Green & Co., New York.

Written for the layman, this is an interesting account of the German airships—cut short, however, by the death of the author who went down with the ill-fated *Hindenburg*.

Commander Rosendahl's preface pays fitting tribute to Captain Lehmann, but the glow of the *Hindenburg* fire colors the whole book and one must respect the nerve of such men as Lehmann who carried on for so many years in cool defiance of nature's law that oxygen and hydrogen combine to form most of the earth's surface over which they flew.

Much of the book is taken up with a detailed and thrilling story in the German style, of war-time operations from which the military value of airships can easily be seen. But the conclusion is inescapable that the future of the airship depends on the use of non-inflammable lifting gas.

It was probably not an easy task for Commander Rosendahl to write the final chapter—to finish a book which his friend had begun. His account of the final voyage is impassioned and straight-forward. His faith unshaken in the future of the dirigible, Commander Rosendahl emphasizes the necessity of the use of helium. This book has a definite and lasting place on the bookshelves of aeronautical history.

**NAVY WINGS** By Lieut. Harold Blaine Miller. Illustrated. 324 pages. \$3.00. Dodd, Mead & Company, New York.

Here is a book singularly distinguished by good writing, a quality which not always blesses a book at-

tempting to portray graphically the history of some phase of aviation. Despite a rather banal title, Lieutenant Miller has done a commendably meritorious job telling the story of the seaplane and its part in developing air routes and in building up a mighty auxiliary of our naval fleet.

There is a vigor to the writing that will make anyone connected with aviation turn his head a little higher. It moves along swiftly, easily and with a complete air of assurance and intimacy of the facts. The names of men familiar to all a decade or two ago, and many names still prominent today, weave in and out of the pages with a rhythm that builds the story into a continuous and dramatic romance. Such wholehearted recommendation cannot be made for every such book, for the tendency has been to make aviation histories either too staid and utterly dry, or to romance the business completely out of its realistic and accurate setting. The author evidently did enough research and spent enough time in his work to make his story cohesive and authentic.

Lieutenant Miller is the author of such books as *Bob Wakefield: Naval Aviator*. Obviously *Navy Wings* is not the type of book that his predecessor works have been as judged from that title. This reviewer is not acquainted with any of his other writings, but it can be said without undue flattery that *Navy Wings* should find a welcome place on the aeronautical bookshelf of any who are even slightly interested in seaplanes, the Navy aeronautics, and the history of aviation generally. To use an old expression, it is suitable for "young and old alike." There are some twenty illustrations, some of them historical, all of which have been selected with careful intent.

## More Unsolicited Comments

"The best \$3.00 I ever spent."  
Robert Scott, San Francisco, Calif.

"Just like to add my voice in praise of your magazine along with all the others. Hope you keep the fine standard set in the early issues." John M. Roberts, United Air Lines, Seattle, Wash.

"You are to be congratulated on having the most outstanding aviation publication in the field today. From all sides and every direction I hear nothing but praise for your publication."

—H. J. Rand, New York City.

"I want to express my complete satisfaction with your publication AMERICAN AVIATION. No doubt that it is most worthwhile for those directly associated with the industry."—K. R. Davis, Pittsburgh, Pa.

"Your next issue is about due and I am looking forward to receiving it, for in every issue I find something of interest, particularly in Chamber of Commerce work."—Kennard Jones, Secretary, Spokane Chamber of Commerce.

"Permit me to compliment you on your new magazine."—J. H. Hawley, U. S. Coast and Geodetic Survey, Washington, D. C.

"AMERICAN AVIATION is beyond a doubt the most timely and outstandingly serviceable magazine in print. The practical approach to the new transport is as well treated as *Time Magazine* in its broader field. Every school system in America should subscribe to AMERICAN AVIATION regardless of whether that system has a technical high school or not. Students and teachers should be familiar with the news in aviation as you are offering it. Your organization has indeed opened the way for a broader understanding of our age in the air."—James Elliott Mooney, Drexel Hill, Pa.

"I am certainly pleased with my sample copies of AMERICAN AVIATION. It fills a gap which other aviation magazines do not touch." John R. Wood, Cleveland Heights, Ohio.

"I would like to compliment you on your new publication and am sure it will be an overwhelming success."—Peyton Autry, Boonville, Ind.

"May I take this opportunity to tell you what a swell job you are doing turning out AMERICAN AVIATION. It is aviation's only NEWS magazine, and as such cannot fail to interest thousands of news-hungry aeroworkers and kibitzers (such as myself.) As you know, I spent four years in Washington writing aviation copy and when I came to Detroit a little more than two years ago, I found I might as well be in Grandad, Wyo., as far as getting COMPLETE and accurate Washington aviation news was concerned. So thank God for AMERICAN AVIATION, its completeness, accuracy, and vigorous editorial policy." Bob Ball, Aviation Editor, Detroit News.

"I have been reading your new magazine since the first issue was published and want to congratulate you and your staff on its informative and well-composed qualities. A publication such as yours has been much needed in the industry, and its success is manifest." Robert C. Morrison, Pasadena, Calif.

"We believe that there is a definite place for a publication such as yours and feel sure that it will be a big success."—S. Budd Simon, Monthly Stock Digest Service, New York City.

"Though I've read every issue of your new magazine—I had to 'borrow' the first one or two until my own subscription copies started coming in—I have waited until now to let you know what a fine publication I consider AMERICAN AVIATION. Without a doubt the appearance of AMERICAN AVIATION in the hands of those interested in aviation, no matter what their interest, was the outstanding event of the year for them. Your publication fills a need that has existed ever since aviation began to enter the common consciousness. Aviation has accepted your magazine with enthusiasm—and your magazine cannot but help aviation tremendously."—Selby Calkins, Aviation Editor, Citizen-News, Hollywood, Calif.

"You have a swell and newsy magazine."—L. M. Bell, Los Angeles.

"As one of your original subscribers, I am finding much of interest to read in AMERICAN AVIATION. It serves a purpose not covered by any other publication or combination of publications. You certainly should have the support of every person interested in aviation development."—Stanley C. Draper, managing director, Oklahoma City Chamber of Commerce.

## B. A. C. Accident Reports

Following are summaries of two accident reports issued by the Bureau of Air Commerce. The first, that of Northwest Airlines, was issued late in June but has been withheld for lack of space. The second report was issued Aug. 11.

### Northwest

**TYPE OF PLANE:** Lockheed Electra, model 10-A. **OPERATOR:** Northwest Airlines. **PILOT:** Joe Livermore. **CO-PILOT:** Arthur A. Haid. **FATALITIES:** 2. **PLACE:** Near Kellogg, Idaho. **DATE:** December 18, 1936.

The flight was cleared from Missoula, Montana, for Spokane, Washington, at 12:33 a. m. P.S.T., for contact flying. However instrument flying was expected over part of the route and arrangements were made for the dispatcher at Spokane to authorize this. A few minutes after taking off, the flight returned to Missoula, climbed through the overcast and again proceeded toward Spokane. At 1:24 a. m. the flight reported that it was flying over the west leg of the Missoula radio range, at an altitude of 15,400 feet, which was above the overcast and was receiving a twilight "A" signal. The twilight "A" would indicate that the airplane at this time was flying south of the proper instrument course.

At 1:34 and 1:44 a. m. the company radio station at Spokane made routine attempts to contact the flight without results. At 1:59 a. m. the flight radioed that it was not receiving range signals, that the airplane was picking up ice and requested the radio personnel at Spokane listen for the flight over the range station. Spokane replied that they could not hear the flight and that an investigation showed the range to be functioning normally. The pilot next radioed that he was over a large town, as indicated by a large group of lights, and requested Spokane to check his position for him. He also stated that he could not stay up much longer on account of ice.

### Heard at Elk River

A telephone operator at Elk River, Idaho, telephoned that an airplane had been circling over the town for a protracted period. Spokane immediately identified the airplane as Flight 1 and radioed the position to the pilot. At 3:11 p. m. the pilot radioed that the flight was approaching the south leg of the Spokane range and asked that other range stations be silenced as he was receiving a multiple. At 3:19 a. m. the pilot stated that he was on course on the south leg of the Spokane range and headed north (toward Spokane).

Nothing further was heard from the flight. On December 26 the wreckage was located about 400 feet from the top of a mountain known as Cemetery Ridge, which is 5,000 feet above sea level. The condition of the wreckage indicated that the airplane had flown into the mountainside in approximately level flight and had caught fire after the impact.

The regional weather forecast issued from Portland, Oregon, predicted light rains at low levels, light snow squalls at intermediate levels over the mountains. It is also possible that at the scene of the accident there was a light fog condition.

An examination of the wreckage and other evidence indicated that there was no structural failure of the aircraft involved. The condition of the propellers indicated that both engines were operating at approximately normal

cruising speed at the time of impact. Although the pilot had reported considerable ice earlier in the flight, the manner in which the airplane struck the ground and the absence of concern in the position report 4 minutes previously, indicate that the airplane was under the pilot's control at the time. The pilot of the eastbound flight reported good radio range reception throughout the air line distance from Spokane to Missoula.

### Clearance O. K.

An analysis of the evidence indicates that this flight was cleared out of Missoula in accordance with existing Department of Commerce regulations. From the first position report at 1:24 a. m. it is apparent that instead of following the (right) edge of the west leg of the Missoula radio range, the pilot had flown to the left (south) of the radio range course. The evidence does not indicate why the pilot, when located and given his position, flew north out of Elk River instead of west, as directed. It is possible that he was experiencing difficulty with one or more navigational instruments on account of turbulent air, but it is hardly conceivable, the Bureau of Air Commerce accident board believes, that his magnetic compass would suddenly get out of adjustment sufficiently to account for the erratic course flown without the pilot realizing it and reporting this difficulty to the company. It appears that the pilot, being concerned about ice at the time he was located elected to take the shortest possible course into Spokane by flying northwest instead of west and intercepting the south leg of the Spokane radio range just south of Spokane instead of 68 miles therefrom; and, starting from a region remote from all radio range courses, again became lost.

In arriving at a conclusion after an analysis of the evidence, the accident board states that it does not appear that the accident was due to weather, mechanical failure of the aircraft, radio aids or communications, or to any failure of the company to comply with prevailing rules and practices. Full cognizance is taken of the possibility that the magnetic compass may not have been functioning properly during the flight. However, a study of available evidence makes this appear improbable.

It is the opinion of the accident board that the probable cause of the accident was faulty navigation in not following the radio range course upon leaving Missoula and failing to ascend to a safe altitude over the course pursued from Elk River.

### Lynch

**TYPE OF PLANE:** Taylor J-2; **OWNER:** Paul Peterson, Altoona, Pa. **PILOT:** Bernard A. Lynch. **FATALITIES:** 1 (pilot). **PLACE:** Altoona, Pa. **DATE:** June 6, 1937.

On June 6, 1937, at approximately 4:05 p. m., at a point one and one-half miles west of Stultz Field, Altoona, Pennsylvania, a privately owned aircraft met with an accident with resultant death to the pilot and the complete destruction of the aircraft.

The pilot, Bernard A. Lynch, held a Federal student pilot's license. The airplane, a Taylor, model J-2, bore Federal license number NC-17808 and was the property of Paul Peterson of Altoona, Pennsylvania.

Student Pilot Lynch had been receiving flying instruction at Stultz Field for two weeks preceding the ac-

## HEIR LINE

Puns and More Puns as Sullivan Traffic Increases

Ed Sullivan, district sales manager in Washington, D. C., for Pennsylvania Central Airlines, issued the following announcement on the birth of a daughter to Mrs. Sullivan. (We're a little late in getting this into print but it's still a good clean (?) gag).

Announcing!!!

The Sullivan Heir Line

Mary Ann Sullivan, president of the new line made the inaugural flight with Chief Pilot Stork on July 20, 1937. A payload of 6 pounds, 4 ounces of fe-male was carried. Temporary headquarters are at the Georgetown Hospital and at a later date operations will be transferred to 3901 Fulton St., N. W. The president advises that the line will operate a fleet of tri-cornered diapers equipped with the latest safety devices.

Mary Ann Sullivan, President

Marian Sullivan, Operations

Manager

Edward Sullivan, Traffic Manager

cident and had been instructed in spins, from which it is stated he recovered very readily. About 4:00 p. m. on June 6, Lynch, flying solo, made a normal take-off and climb. About five minutes later the aircraft was observed spinning or tight spiraling into the side of a hill about one and one-half miles west of the field.

An examination of the aircraft wreckage indicated that it had made impact with the ground in a practically vertical position while spinning or spiraling to the right. All controls appeared to be in good condition and there was nothing found to indicate structural failure of the aircraft.

The airport from which Student Pilot Lynch took off is situated in a valley between two mountain ranges, one of which is only a short distance south of the airport and at an elevation of about 1,000 feet above it. It is known that at times violent gusts are encountered in this section. It seems reasonable to suppose, therefore, that Pilot Lynch, while making a turn to the right at a low altitude near the mountain range, following the take-off, was caught in a violent gust or down-draft which caused a loss of control from which he was unable to effect a recovery.

It is the opinion of the Bureau of Air Commerce that the probable cause of this accident was violent air conditions in the vicinity of the mountain range adjacent to the airport.

## Air Line Inspection Personnel Completed

J. B. Jaynes, chief of the air line inspection section of the Bureau of Air Commerce, has announced the completed personnel of air line and air line maintenance inspectors. Following reorganization of the Bureau some months ago, changes have been in progress among the Bureau's organization.

The following list is accurate as of August 1 with the exception of Miami, the post held by C. G. Caldwell who was on the Pan-American-Grace clipper which crashed into the ocean August 2.

### Air Line

Hazen, R. L., Newark Airport, Newark, N. J.; Niemeyer, A. D., Newark Airport, Newark, N. J.; Harding, L. S., Cleveland Airport, Cleveland, Ohio; Goodnough, M. H., Municipal Airport, Chicago, Ill.; Anderson, H. W., Municipal Airport, Chicago, Ill.; Keeley, Roy, Municipal Airport, Atlanta, Ga.; DeLany, R. W., Municipal Airport, Kansas City, Mo.; Douglas, Jas. H., Municipal Airport, Kansas City, Mo.; Kinney, J. L., Union Air Terminal, Burbank, Cal.; Read, Jas. E., Union Air Terminal, Burbank, Cal.; Smith, Alvin W., Oakland Airport, Oakland, Cal.; Ison, N. B., Meacham Field, Fort Worth, Texas.

### Air Line (Radio)

Nichols, R. G., Washington Office; Studebaker, Ford, Washington Office.

### Air Line Maintenance

Lossow, G. W., Newark Airport, Newark, N. J.; Kerr, A. E., Chicago Municipal Airport, Chicago, Ill.; Taylor, H. B., Chicago Municipal Airport, Chicago, Ill.; Annis, J. C., 36th St. Airport, Miami, Fla.; P. O. Box 285, Miami Springs; Reed, C. B., Municipal Airport, Kansas City, Mo.; Phelan, W. E., Union Air Terminal, Burbank, Cal.; Rost, O. A., Oakland Airport, Oakland, Cal.; Wallace, O. L., Meacham Field, Fort Worth, Texas.

## TWA DROPS EXTRA FARE

Three Percent Saving for Passengers; Berth Charges Retained

Kansas City, August 14.—Elimination of extra fare charges on Skysleeper and Skylub planes of TWA was announced today by John B. Walker, vice-president in charge of traffic.

Walker explained that when the new equipment was first introduced the extra fare seat charge was necessary because of the heavy demand. With the new planes in full operation, it is possible to remove this charge.

A nation-wide reorganization of TWA's schedules has placed Skysleeper and Skylub equipment on the coast-to-coast first and second Sky Chief flights and on the non-stop flights between New York and Chicago.

The passenger will save about three percent through the elimination of extra charges. Berth charges will be retained by the line.

## Your Best Travel BUY is BY Braniff

Luxurious, Braniff-flown Douglas airliners serve Chicago, Kansas City, Wichita, Oklahoma City, Dallas, Ft. Worth, Austin, San Antonio, Corpus Christi and Brownsville. Braniff passengers enjoy the advantages and security of all modern, tested navigation aids, including automatic gyro-pilots, homing direction finder loops and dial-tuning, 10-frequency radio; luxurious cabin appointments; all comfort facilities; hostess service; meals aloft; fast, dependable schedules. For reservations and information, call Braniff, your travel agent, any telegraph office or leading hotel.



**BRANIFF**  
THE B LINE  
*Airways*



## PLANNING NEEDED FOR "ROOF HOPPER"

### National Resources Committee Report Sees "Steep Flight Aircraft" for City Suburbanites

Looking well into the future and predicting the time when "steep flight aircraft" will be used by suburbanites to travel from home to business office rooftop, a committee of nationally known scientists and sociologists reported to President Roosevelt July 18 that a planning board is needed to co-ordinate national programs in the light of technical developments which may be expected in the years to come.

Headed by Dr. William F. Ogburn, of the University of Chicago, the committee made the study under the National Resources Committee, and covered everything from labor-saving devices to education. The committee laid special emphasis on "steep flight aircraft" and television.

The former rests on the successful development of the so-called "roof-hopper"—an aircraft that will go straight up, hover in the air and come straight down at low speed, the committee said. It now is represented by such forms as the helicopter and autogiro.

Many technical problems remain to be solved, says the report, "but the winged horse which can leap into the air, soar or hover in the skies, and drop gently on a constricted landing spot is no chimera—experimentally, at least, it has arrived."

It would enable the suburban dweller to leave home in the morning and drop down safely a few minutes later on his office roof with none of the worries of present day traffic jams, parking, etc. Such aircraft, says the report, "could be housed on roofs or brought to the lower floors on elevators. They will have much more freedom of movement than our present automobiles, since they can move in three dimensions instead of two."

The report cautions, however, that "while private planes by the ten-thousands probably will be used within another decade, more time doubtless will elapse before they become serious competitors of the private automobile. Types already demonstrated which can land on any usable field, fold up like a beetle, and proceed along the highways like an automobile to be housed in the home garage have intriguing possibilities."

Such a development, it is stressed, will have far-reaching implications in many lines. It will require modifications in prevalent types of architecture. It will extend city limits still further, enable families to go almost anywhere for week-end vacations, and bring about perplexing police problems. The future may look forward to the "roof hopper" bandit.

Air transport in general, it is predicted, will become faster, safer, cheaper, cover greater distances and gain in popularity. Its development, however, will be along lines of its present structure and it will remain in the hands of experts.

#### What Did Congress Do?

Congressional Intelligence's annual summary of the activities of the First Session, 75th Congress. Contains digest of major public laws, day by day chronology, voting record of every member on all major bills, activities of administrative departments, expenditures. Only volume of its kind available. Mail money order or check for \$1.00.

R. Morton Graham, Room 1147, Nat'l Press Bldg., Washington, D. C.

## Tennessee Valley Authority Uses 3 Airplanes for Surveys and Dusting

Three airplanes are used constantly in the work of the Tennessee Valley Authority. The Authority operates three planes, a Stearman, a Monocraft, and a Bellanca, and on occasion contracts for the use of others.

An aerial dusting program has been found to be very effective against the malaria-carrying Anopheles mosquito, which forms a potential menace due to the impounding of reservoir waters. Two planes, the Stearman and one furnished by the Delta Aircraft Corp. of Monroe, La., on contract, lay down a dust cloud that covers a strip some 500 feet wide and is fatal to mosquito larvae in the breeding pools. The cost of this compares favorably with other larvacidal measures.

Edgar Tobin Aerial Surveys, of San Antonio, Texas, and Aero Service Corp., of Philadelphia, Pa., have done several types of aerial surveys for the Authority. By use of aerial mosaics, the TVA cuts the surveying cost attached to reservoir land acquisition approximately 90 percent.

Recently the Authority, with the cooperation of the United States Geological Survey, completed the largest single mapping project in history, charting the entire 41,000 square miles of the Tennessee Valley from the air to produce planimetric maps. The aerial photography, involving nine months of flying, was done by Aero Service Corp.

### DR. SHARP NAMED

#### Heads Oregon Aeronautics Board Succeeding Dr. Raymond Staub

Portland, Ore., August 3.—Dr. Paul Sharp yesterday was named chairman of the state board of aeronautics with Dr. Raymond R. Staub of Portland, retiring chairman, as treasurer. Dr. Sharp is a sportsman pilot and a member of the Klamath Falls airport commission.

The board indicated that it favored development of nine recreational airports in Oregon, including the nearly completed fields at Lakeside and Brookings. The fields, constructed by the state board of forestry, would open Oregon's hunting and fishing districts to aircraft.

It was learned that the recent Oregon air tour, sponsored by the board, had been attended by approximately 150,000 persons in the 10 cities where performances were given.

### BRITISH PILOTS

#### Association Formed For Collective Bargaining and Protection

London, England.—The British Air Line Pilots' Association has been formed with 200 initial members. Lane Burslem is chairman of the provisional organizing committee and Capt. W. Rogers is chairman of the investigating committee.

The Right Honorable Lord Chesham has accepted the presidency of the association, and H. R. Latreille has been appointed secretary. Objects of the association include protection of the interests of the pilots. Membership is restricted to pilots flying on a regular airline, or pilots who hold current 2d class navigators' tickets and are so qualified as commercial airline pilots. The association will encourage the adoption of standard forms of contracts and settlement of disputes by collective bargaining.

### U. S. Pilots in China Decide to Skip Home

Aug. 21.—The entire body of American instructors in China's aviation schools and fifteen American pilots and officials of the China National Aviation Corporation withdrew today and prepared to sail for the United States in order to aid U. S. efforts to avoid involvement in the Sino-Japanese war.

The instructors have been stationed at Hangchow, Nanking, Nanchang and other points. The pilots of C. N. A. C. decided to come home when the Government commandeered all commercial planes for war purposes. The airline is owned jointly by China and Pan American Airways, the latter's interest being about 45%.

## LEGISLATION

(Continued from page 2)

### Miscellaneous

Several sorts of bills affecting aviation were introduced which were promptly buried in committees. Among miscellaneous accomplishments was passage of a bill for payment to Consolidated Aircraft Co. of \$92,993. Another such bill passed the Senate but the House disagreed and it is now in conference. Another bill, H. R. 8143, authorizing appropriation for development of the autogiro, is now in the Military Affairs Committee and will be taken up next session, it having been introduced only on Aug. 4. Report of passage of H. R. 4506 for relief of N. E. Serhamn and B. W. Smith is given in this issue.

### Appropriations

Departments concerned with aviation fared well this session. The Post Office got additional money for air mail. The Department of Commerce received \$7,000,000 for air navigation aids, although some of this is not to be actually spent until later. The Weather Bureau received a substantial increase for expanding the service. The military departments received appropriations of near record-breaking proportions for aircraft.

### Copeland Safety Report

In the last issue of AMERICAN AVIATION the Copeland safety report which was submitted at the beginning of the session in January was not listed among accomplishments of the session. This was an unintentional oversight as the report comprised an important document now familiar to most of the industry.

### Manufacturers

Of prime importance to small aircraft and accessory manufacturers was the passage early in the session of the Neutrality Act which cut down the munitions license from \$500 to \$100 for all companies doing an export business of \$50,000 or less per year. This easing of an irritable situation was accomplished through representations made by the Aeronautical Chamber of Commerce.

Of great pending importance to military aircraft manufacturers is the pending bill, H. R. 7777, which would amend the Vinson-Trammell Act to exempt aircraft from the application of the 10% profit limitation. Hearings have been held in August and the bill will be in good position for passage next session. The Aeronautical Chamber of Commerce has been active for this bill and it has the support of the Navy Department. A complete analysis of this bill together with a report on hearings will be given in the next issue.

### Helium

After hours of acrimonious debate in both the Senate and the House, the Helium Act was made public law, providing for the sale of helium to foreign countries who will use it in operation of dirigibles between their respective countries and the United States. This restriction may work a serious hardship on German interests since they must bring a dirigible to this country filled with hydrogen in

## UAL MAN INVENTS NOVEL CALCULATOR

### New Flight Gadget Gives Check Points at Glance; Used on United Planes

Zay Smith, formerly first-line pilot of United Air Lines and now located in United's main Chicago offices, has invented a flight calculator which is now used on United transports and which he believes can be of considerable use to private pilots desiring to clock their times en route without having to make time-consuming calculations.

"My gadget is no world wonder," Zay writes. "It will not do as much as nearly any other flight calculator on the market. Neither will it give the split hair precision of a slide rule. But what it does do it does simply, and quickly, and requires absolutely no mental calculations on the part of the pilot, such as subtractions to determine elapsed time or elapsed miles."

"With my flight calculator all that is required of the pilot is to note the exact time over two or more known check points and to adjust the gadget so that the CLOCK TIME over each point is opposite the NAME of each point. That's all. The gadget will now show him:

1. His average ground speed between those points.
2. His estimated time of arrival at his destination or over any checkpoint en route.
3. The elapsed time between any two places.
4. The elapsed miles between any two places.
5. The clock time to begin his descent in order to reach his destination.
6. The name of any check point en route by reference to the actual clock time.

"Or, by setting the desired time of arrival opposite the desired destination, the scheduled time over each check point is indicated. There is also a gas consumption scale and an ordinary slide rule scale for use in working any problems involving multiplication or division. A place for notes showing estimated and actual times over certain check points provides a log of the trip.

"That's all it will do. It will not figure winds aloft or drift angles; in fact, I purposely left off everything not absolutely necessary on each trip in an effort to make it simple enough to understand and use even while at the controls in flight.

"As you probably have already surmised, it is but a graphic representation of the old a:b::x formula. Being graphic, split minute readings are not easy but predicting times of arrival within two minutes over an hour before hand is possible over 90% of the time.

"It has been used on United Air Lines along with other calculators for almost a year but I believe its greatest appeal is to the private pilot who appreciates its convenience and simplicity. It is flat and can be carried in the inside coat pocket. Because of the care required in assembly I have never put this on a production basis. Each one is still assembled by hand which means that the seven dollar price includes practically no profit. It was a brainchild born in the cockpit and developed for the fun of it."

order to obtain helium. The Act creates, in effect, a government monopoly of helium. It is believed that the Act is favorable for possible American dirigible operators. An analysis of this Act will be made in a subsequent issue of this magazine.

## Ryan Aeronautical Announces Its 3-Place Cabin Monoplane

Developed from ST Series, New Ship Features Sliding Glass Hatch with Unusual Visibility;  
Seat Space is Generous

Bound to create considerable interest in the light plane field, Ryan Aeronautical Company, San Diego, has announced specification data for its new model S-C three-place cabin monoplane. The first test model has been expected for some time and Ryan announces that it has now gone into production on the ship, which is development of the present ST series.

Developed for both business and pleasure flying, the S-C has a number of advanced features, one being larger seat room and another being a sliding hatch arrangement which eliminates the use of doors. Pilot and passenger vision is unusually good.

The pilot and one passenger sit side by side, with a third seat in the rear. The inside width of the front seat is 43 inches and the seat for the rear passenger is 40 inches—both generous for room. The inside length of the cabin is 74½ inches and height 50¾ inches. The cabin is sound proofed and the interior is finished in Laidlaw upholstery.

A large sliding hatch forms the top and sides of the front part of the cabin. This operates on ball bearing rollers and the plane can be flown with this in open, closed or intermediate positions. It provides an opening 27 inches wide for entrance or exist without braces or other obstructions in the center. The hatch arrangements provides the combined features of an open and closed plane and, in case of emergency, a safe parachute exist is possible.

As for pilot vision, the pilot's eye level is approximately 10 inches above the top of the cowling line which slants toward the nose at 6½ degrees. This gives so much vision over the nose that a 180 degree panorama of the ground ahead is in complete view of the pilot at all times. It is even possible for the pilot to see over the nose of the ship when taxiing on the ground with tail down. The flexible glass hatch covering overhead eliminates the bad blind area present in high wing monoplanes or biplanes when in banked turns and provides the same complete turn and upward vision as in an open low-wing monoplane.

### Standard Equipment

Longitudinal trimming is by trailing edge elevator tab which is controllable by a small crank conveniently located. A single split flap of the perforated type is simply and instantly controllable by a lever at the pilot's side of the cabin. Provision is made for retractable landing lights, flares, radio—receiver and transmitter, generator in addition to standard equipment.

The plane is a low wing, full cantilever, monoplane of metal construction. The fuselage is a full monocoque type with a thick gauge skin of 24 ST Alclad. The wing panels are removable from the fuselage and are also built entirely of 24 ST Dural and Alclad. The ailerons are metal structured or dural and steel and are balanced both statically and aerodynamically.

Sam C. Breder, manager of aircraft sales for Ryan, has released the following specifications and performance of the S-C, equipped with Menasco C4S (150 HP):

Wing Span .....	37' 6"
Overall Length .....	26' 7½"
Overall Height .....	7'
Wing Area .....	202 sq. ft.
Empty Weight (Standard Equipment which includes Starter and Battery) .....	1300 lbs.

Useful Load .....	800 lbs.
Gross Weight .....	2100 lbs.
Wing Loading .....	10.4 lbs. per sq. ft.
Power Loading .....	14 lbs. per h.p.
Max. Speed (3000 ft.) .....	152 m.p.h.
Cruising Speed (3000 ft.) .....	136 m.p.h.
Cruising Speed (5000 ft.) .....	140 m.p.h.
Landing Speed .....	45 m.p.h.
Rate of Climb .....	900 ft. per min.
Take-off Run .....	166 yds.
Service Ceiling .....	19,400 ft.
Max. Cruising Range ..	520 miles

The landing gear is of the single strut, full cantilever type completely faired. The tail wheel is of the pneumatic type, full swiveling and mounted on an oleo shock absorber strut.

With a cruising range of over 520 miles, Ryan claims unusual economy of operation with its 140 mile per hour cruising speed.

"Flight characteristics and performance of the plane are exceptionally fine," the company's statement said. "Its light wing load and clean design give it a quick take-off, rapid climb, a high ceiling and a fast cruising speed and exceedingly low landing speed. It is very light and extremely responsive to all the controls. Stability in a stall has been accomplished to a fine point. In fact, it is nearly impossible to stall the ship without intentionally forcing it into ones, and then when the stall is reached the nose drops only slightly below the horizon and aileron control is maintained throughout."

### CURTISS-WRIGHT GRADS

#### Mechanics, Engineers, Metal Workers Finish Technical Training

Glendale, Calif., August 24—Fifteen students will be graduated in September from the Curtiss-Wright Technical Institute of Aeronautics at Grand Central Air Terminal here. Nine of these have completed the master mechanics' course and the rest will be sheet metal workers.

A number of engineering students will also finish but a list of them is not available because of the peculiar system employed by the school. These students are given a certain number of projects to complete and remain in school until they are completed or until they are placed on a job somewhere, which is often before they graduate.

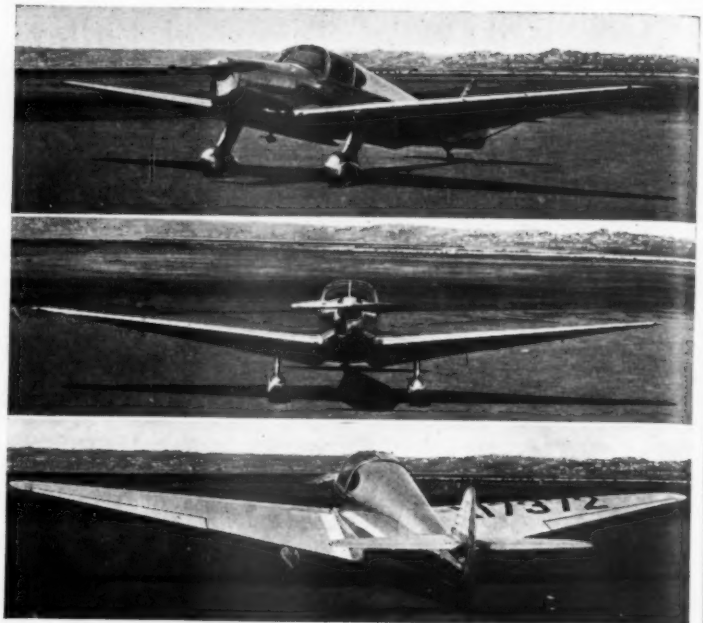
The master mechanics graduates are Mondell Bennett, Orin Diehm, Carl Lundgren, Charles Milne, Harvey Mayer, Roland Klotz, Willard Gallaway and Jack Dodson. The metal workers are C. E. Galloway, Lloyd Saunders, George Latimer, J. D. Ganzer, Robert Bovee, and Wayne Curtiss.

### FLYING AUTO APPROVED

#### A.T.C. Given Automobile Engine; Demonstration Tour Planned

South Bend, Ind., August 20.—A stock Studebaker six-cylinder automobile engine used in a combined flying and road machine belonging to Waldo Waterman, was yesterday granted an Approved Type Certificate by the Department of Commerce. Approval followed a full throttle test of 150 hours and flight tests.

Only two other automobile engines, a six and an eight, have been granted an A.T.C. The Studebaker Corporation will send five of the flying cars on an extensive demonstration tour, starting from the National Air Races at Cleveland on Sept. 3.



Three Views of the Ryan S-C

## Spartan Test-Flys Its New Attack Bomber; Has Eye on Foreign Market

Tulsa, Okla., Aug. 14.—Spartan Aircraft Company took out of its assembly shop yesterday and test flew today its new attack bomber, to be known as the Spartan Zeus. Test flights will be continued for several weeks and after that Spartan believes it has a product which should merit a substantial number of foreign sales.

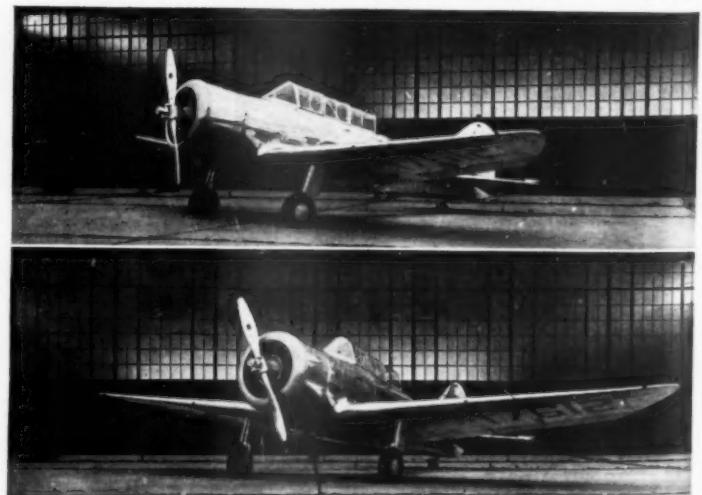
Built on spec, the bomber is equipped to carry ten bombs, five under each wing, and three machine guns, two fixed in the wing spars near the point of the wing attachment, and one mounted in the gunner's cockpit, on a new type swivel allowing the greatest possible range and flexibility.

The Zeus is an all-metal, low-wing monoplane powered by a Pratt & Whitney SB550 and has a cruising speed of

place fighter or observation plane or as a trainer. The Wright R975-E or the Pratt & Whitney Jr., can be installed. It is said to take off in less than 500 feet, climb 2,500 feet a minute, and has a cruising range of 700 to 900 miles with a fuel capacity of 110 gallons of gasoline. Landing speed is sixty-five miles per hour.

The Spartan company says the ship is basically a conversion of the commercial ship manufactured by the company for the past year. Several foreign countries have evidenced interest, it is said, while one country is considering the possibility of building the ships in its own country.

Standard equipment will include all latest devices for safety and efficiency. It will have single-piece metal propeller.



210 miles per hour. Top speed is rated at 230 per hour. Designed for high performance in either offense or defense, Spartan officials believe they have an all-round first-class job which should run circles around anything in its particular class.

Bill Welborn, factory manager, claims the Zeus to be the fastest attack bomber on the market, out-performing even the heavier two-engine craft.

The ship can be arranged as a two-

lers, self-starter and generator; autofan wheels and streamline tires, pneumatic aileron struts, wing position lights and tail light, fire extinguisher, fresh air ducts, stick control and hydraulic brakes. It will also have retractable landing gear, and provisions have been made for installation of seaplane floats.

Gross weight is 4,500 pounds with empty weight of 3,050 pounds. Gross weight includes armaments with 1,200 rounds of ammunition.



## Consolidated Lays Off 200 Workers

Shortage of Materials and Lack of New Business Blamed; Union Officials Suspended

San Diego, Aug. 20.—Consolidated Aircraft Corp. has laid off some 200 employees with the prospect that more will be let out shortly. In a notice to employees, Reuben H. Fleet, president, said, "Because of shortages of material due to strikes in the east, other delays beyond our control, and lack of new business, it is necessary to reduce personnel materially."

To lessen lay-offs and distribute work, Mr. Fleet said the company had decided to reduce hours and schedules as follows: The third shift will be discontinued; the remaining night shift will be discontinued except for the machine and paint shops and necessary janitors, watchmen and maintenance men; regular 40-hour work week will be followed on both remaining shifts; Saturday work and all overtime schedules (salary and hourly) will be discontinued; partially to make up for loss of overtime pay, there will be added to present rates 5¢ per hour to all hourly employees, plus 5¢ per hour when employed on the night shift, and 5% to the five day base pay of all salary employees (except those on executive payroll).

Previous to the notice, Aircraft Lodge No. 1125, International Association of Machinists, had asked for a 10% increase in wages, a 48-hour week, seniority rights as applicable to lay-offs, a shop steward system, closed shop, and no minors or students hired during layoff periods.

Following posting of the lay-off notice, the lodge filed a protest with the company, stating that it was the union's understanding that it was to be given advance notice of changes and to co-operate with the company in such matters. The union also protested against the company's delay in answering its first letter.

In reply, Mr. Fleet said he had received a letter from C. L. Bentley, Grand Lodge Representative of the International Association of Machinists giving notice that the officers of Lodge 1125 had been suspended under provisions of the constitution of the organization and that the management could henceforth "govern itself in accordance." Mr. Fleet also added the following:

"Would it be in order for us to inquire whether your letter was June 23, 1937 to Admiral King making certain charges against us (unfortunately right at a time when our bid for PBV-4's is under consideration) was directed by your Lodge, or by some committee or written upon your own initiative?" Mr. Fleet's reply was addressed to George R. Smith, recording secretary of the lodge. No other mention of the "letter to Admiral King" has been made.

## SEATTLE AIR SHOW

Fifth Annual Event Scheduled for Sept. 5 at Boeing Field

Seattle, August 24.—The Fifth Annual Air Show and King County Industrial Exposition sponsored by the Duwamish Industrial Club and the Junior Chamber of Commerce will start on September 5. The Air Show is set for that date and the exposition will be held September 6-9.

Air derbies to Boeing Field from Portland, Spokane, and Vancouver, B. C., will be part of the program along with parachute jumps, spot landings, and glider flights. Curtiss Spiller is adviser to the air show committee and Russell Bock, Clarence Hagstrom, Chet Have, and Mel Borgersen are members of the finance committee.

## Stock Issues

### Taylor-Young

New York, August 26.—Taylor-Young Airplane Co. has issued 115,000 shares of common stock at \$3 a share, marking the first public financing by the company since its organization in March. Taylor-Young manufactures and sells popular-priced light airplanes. The proceeds from the issue will be used for an increase in inventory to increase production, plant expansion, and purchase of equipment. The registration statement of the company with the SEC was carried in the June 1 issue of AMERICAN AVIATION.

### Grumman Aircraft

Washington, August 26.—Grumman Aircraft Engineering Corp., of Bethpage, N. Y., manufacturers of airplanes and parts, has filed with the SEC a registration statement for 140,000 shares of one dollar par common stock. Hemphill, Noyes and Co., underwriters, will offer 95,000 shares; 5,000 shares will be offered to certain employees at \$7.65 a share and 40,000 shares will be reserved for warrants to be issued by the underwriters. The proceeds are to be used for working capital.

### Interstate Aircraft

Washington, August 26.—The Interstate Aircraft and Engineering Corp. of El Segundo, Calif., has offered 300,000 shares of stock to the public. Par is \$1 a share. The registration statement with the SEC was carried in the July 1 issue of AMERICAN AVIATION.

The complete issue includes 150,000 shares in exchange for assets of predecessors of a net value of \$150,837.65; 300,000 shares through underwriter to the public; 50,000 shares to officers for services. Laswell and Co. are principal underwriters.

The company, which manufactures airplane parts, was incorporated on April 26, 1937, and acquired the entire business, properties and assets of Interstate Engineering Corp.

## Obituaries

HARRY E. WEIGHTMAN, 41, retired pilot, died Monday, August 9 at his home in Seattle, Wash. Funeral services were held Saturday, August 14.

Weightman served in the U. S. Air Service during the World War as private in the 40th Squadron. In 1918 he was promoted to the rank of second lieutenant and served at Call Field and Brooks Field in Texas, and Eberts Field in Arkansas. He started flying commercially in 1923 for Northwest Airlines and later flew for Coast Airlines. In 1928 he became a private pilot, retiring in 1931.

## CLASSIFIED ADS

7¢ per word—minimum charge \$1.00—Payable in advance

FOR SALE: FRANKLIN P. S.—2 Utility, complete with trailer, tow line and everything necessary for immediate operation. Ship just rebuilt, recovered, and relicensed. Many improvements—perfect condition. Price \$500.00. Donald Hamilton, 1657 31st Street, N. W., Washington, D. C.

Conscientious, aggressive college graduate, 27, acquaintance three languages. Now employed airline traffic department two years. Must locate opportunity earn minimum \$160 monthly. Box 102, AMERICAN AVIATION, Earle Bldg., Washington, D. C.

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Here is real proof that AMERICAN AVIATION is not a one-copy-to-a-company magazine—proof of the universal acceptance of AMERICAN AVIATION as THE news voice of aviation.

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★ THE TEXAS COMPANY... subscribed for every person in its wide-a-wake aviation department because Texaco executives found AMERICAN AVIATION being read by the buyers of Texaco gasoline and oil and because Texaco's personnel HAVE to keep on their toes and know what's doing in the industry.

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Quoting John B. Walker, vice-president—traffic, of Transcontinental & Western Air, Inc.—

*"American Aviation is Absolutely Indispensable to Anyone in the Industry"*

# July Traffic Hits New Record

**For Second Successive Month Revenue Passenger Mile Figures Reach All-Time High with 44,099,684 Reported for July**

**R**EVENUE passenger miles of U. S. air lines again soared to a new record high in July according to the industry's statistics released August 20 by Fowler W. Barker, secretary of the Air Transport Association.

A total of 44,099,684 revenue passenger miles were flown, an increase of 7% over the month of June, and an increase of 9.8% over July, 1937, which had remained the highest month until June of this year.

Revenue passenger miles for the first seven months of 1937 totalled 218,920,327 as compared with 197,646,900 for the January-July period of last year.

Most notable feature of the generally improving air traffic picture is the increases shown by smaller lines, some of which evidently doubled their July business over June.

Only two airlines showed decreases in July over June, but these were seasonal declines peculiar to the territory served and their July revenue passenger miles were substantially in excess of July figures for 1936.

United Air Lines, which relinquished the lead to American Airlines last September, has installed new equipment on its transcontinental route and accounted for 28 per cent of the total traffic last month. American accounted for 29.6 per cent and indications are that United will regain the lead during August. United has been steadily gaining since February when its percentage dropped to 15.3, an all-time low.

In July, American flew 13,078,082 revenue passenger miles compared with 12,541,135 in June and 9,737,307 in July, 1936. United flew 12,375,000 revenue passenger miles in July, 11,099,366 in June, and 11,653,235 in July last year.

Transcontinental and Western Air has been increasing its mileage, but it was still running a year ago. In July, TWA accounted for 16.2 per cent of the total, flying 7,180,002 revenue passenger miles, as compared with 7,503,088 miles or 18.7 per cent of the total in July, 1936.

Representative of the smaller lines, Hanford Airlines reports that its passenger traffic reached an all-time high in July when the former peak figures made last May were exceeded by 37 per cent. The May record was also broken in June when passenger traffic increased 27.7 per cent.

## TWA LOSES \$127,208

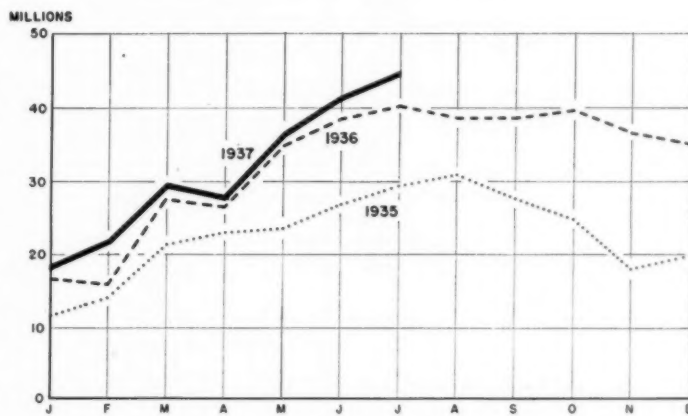
**Frye Discusses 100-Passenger Planes; Wants Legislative Stability**

New York, August 23.—Transcontinental and Western Air, Inc., reports a net loss of \$127,208 for the June quarter after depreciation, Federal income taxes, etc. This compares with a net loss of \$359,933 in the preceding quarter and a net profit of \$137,860 in the June quarter of 1936, equal to 22 cents a share on 623,136 shares of capital stock outstanding.

The company also reports a net loss of \$487,141 for the six months ended June 30, 1937 compared with adjusted net profit of \$79,090, or 12 cents a share on 623,135 shares in the first half of 1936.

Jack Frye, president, stated that if guaranteed legal and legislative stabil-

REVENUE PASSENGER MILES FLOWN



ity, TWA would immediately order ten 100-passenger airplanes. He said they have been assured of sufficient capital and only want to be certain that the government will let them operate indefinitely between points where the company wishes to put them into service. The ships have already been designed and cost estimates made by manufacturers.

## TWA SHOWS GAIN

**Revenue Passenger Miles for July Up 13 Percent**

Chicago, August 14.—Transcontinental and Western Air showed a gain of 13 per cent in revenue passenger miles for July over June, according to John B. Walker, vice-president in charge of traffic.

During the first seven months of 1937 TWA showed increases of three percent in pounds of air mail transported and 20 percent in express pound miles flown as against the same period in 1936.

Walker stated that the line flew 7,180,002 revenue passenger miles in July as compared with 6,353,284 in June.

## NEWARK TRAFFIC UP

**Combined Increase of 30 Percent for Six Months**

Newark, August 14.—Newark Airport commercial air traffic for the first six months of this year showed a combined increase of almost 30 percent over a similar period last year.

Air mail showed the biggest jump, increasing 32 percent. Figures show that for the first half of this year, 2,303,187 pounds were carried as against 1,742,984 for the first six months of 1936. Airway express gained 28 percent, showing 1,175,208 pounds against 919,833 for a similar 1936 period. Paid fares so far this year have totaled 130,393, a gain of 24 percent over the 105,111 carried up to June 30 last year.

These figures were revealed today in the half-yearly reports of the four major airlines operating here.

## AMERICAN, UNITED SHOW HEAVY GAINS

**Second Quarter Profits Will Wipe Out Some of Earlier Losses, Is Indication**

American Airlines, Inc., and United Air Lines Transport Corp., have both reported that passenger traffic currently is running at a record pace. It was predicted in *The Wall Street Journal* on August 18 that both lines will be able to wipe out a substantial portion of their first half losses in the quarter ending September 30.

United is earning an estimated \$100,000 a month so that if the weather is good and traffic holds up, it should have a net profit of \$300,000 for the three months ending September 30. In the quarter ending June 30 this year, the company lost \$59,850 and in the September quarter of 1936 had a profit of \$267,582. A \$300,000 profit for the 1937 September quarter would reduce United's loss for the nine months ending September 30 to \$150,000. The first nine months of last year brought a profit of \$134,336. The company sustained an actual loss of \$638,550 for the first half of this year but a profit of \$175,964 on equipment sales made the net loss \$462,588 as compared with a net loss of \$133,246 for the first half of 1936.

American Airlines lost approximately \$600,000 during the first half of this year as compared with \$438,553 for a similar period last year. The company's re-equipment program is almost completed and if it can show a profit of \$300,000 for the September quarter it would reduce its loss for the first nine months of this year to approximately \$300,000.

## Joins "Million-Milers"

National Parks Airways, now Western Air Express, has announced that H. C. Hollenbeck has joined the ranks of "million-milers." Hollenbeck has flown over 10,000 hours during his million miles of piloting. A Navy-trained man, he began flying at the Great Lakes Naval Training School in 1925.

## \$59,850 UAL Loss

**In Second Quarter**

Chicago, August 14.—United Air Lines Transport Corp. and subsidiaries showed a net loss of \$59,850 for the quarter ended June 30, 1937. This figure compares with net loss of \$402,735 in the preceding quarter and net profit of \$222,625 equal to 21 cents a share on 1,043,938 shares of capital stock in the June quarter of the previous year.

For the six months ending June 30, 1937, United's net loss was \$462,588 as compared with a loss of \$133,246 for the first half of 1936.

The company's quarterly report also showed a net loss of \$68,532 for the 12 months ending June 30, 1937, as compared with a net profit of \$125,087 or 12 cents a share on 1,043,938 shares for the year ending June 30, 1936.

## Goodyear-Zeppelin Gets Navy Contract

The Navy Department announced August 12 that a contract for two non-rigid airships has been awarded to the Goodyear-Zeppelin Corporation, Akron, Ohio, for the sum of \$284,821.29.

One of these non-rigid ships, which will be of 125,000 cubic feet capacity, will be used for training and general utility purposes. The other, of 400,000 cubic feet capacity, will be for coastal patrol. Both ships will be based at the Naval Air Station, Lakehurst, N. J. Bids for the construction of these non-rigid ships were received in the Navy Dept. on June 18.

## ZEP MAKES MONEY

**Company Keeps Ships on Ground; Shows First Profit**

Berlin, August 22.—The Zeppelin Company is finding it more profitable to stick to the ground. It doesn't have a single ship in the air at present but it is making money for the first time.

The old Graf Zeppelin is on exhibition at Frankfurt and during the first three weeks, 100,000 persons paid one mark, equal to about 23 cents, to see it. To date about 500,000 persons have paid approximately \$115,000 to inspect the ship.

When the company had airships in operation its loss was 40 percent. This loss was made up by the government.

## BOEING PLANT READY

**Army Bombers to Be Built in Factory Addition**

Seattle, Aug. 18.—Boeing's plant No. 2, being constructed by the Austin Company, will be ready for occupancy about Sept. 1. The 250 by 300 foot addition will be used for production of the fleet of Model 307 four-engined transports for TWA and Pan American.

At Plant No. 1, the two-story office building extension is now practically completed and engineers planned to move 165 drafting tables into the new quarters. Room is provided for secret development work and the planning unit as well as the engineers.



## Sperry Corp. Earns 68 Cents A Share

A decline in the profit from the sale of securities over-balanced a profit from operations for Sperry Corporation, and the company has reported earnings of 68 cents a share for the first half of this year as compared with 85 cents a share for the first half of 1936.

Sperry showed a net profit from operations of \$1,186,672 for the first half against \$602,101 for the like 1936 period. However, profit on the sale of securities for these periods fell from \$1,055,204 last year to \$183,795 this year.

The complete report of the Sperry Corp., including wholly owned subsidiaries for six months ending June 30, 1937, shows a net income of \$1,570,467 after depreciation and provision for income, franchise, and capital stock taxes, but before undistributed profits taxes, equal to 68 cents a share on 2,015,565 shares.

Following is the consolidated income account:

	1937	1936
Gross income, including royalties, etc.	\$2,696,425	\$1,504,446
Depreciation	159,242	109,009
Expense, research, etc.	940,505	627,869
Operating income	\$1,596,678	\$767,568
Profit on sale C.-W. Corp. stock	142,411	1,009,569
Profit on sale oth. sec.	41,384	45,635
Other income	51,954	89,383
Total income	\$1,832,427	\$1,912,155
Transfer fees & other expenses	23,818	42,128
Income, franchise and capital stock tax	438,142	212,722
Net income	\$1,370,467	\$1,657,305
Dividends		
Surplus	\$1,370,467	\$1,657,305

The company reports that unfilled orders on June 30 were approximately 60 per cent higher than at the beginning of this year. This is partly accounted for by the fact that the unfilled orders of Vickers, Inc., were included in the June 30 statement but not in the year-end one. All of the outstanding stock of Vicker was acquired by Sperry in exchange for 66,454 shares of its own stock and the payment of \$15,633 in cash. These shares were deposited for Sperry voting trust certificates of which there are now 2,015,565 outstanding.

Vickers' shipments from the first of March to the end of June totaled \$1,964,464 and are expected to be in excess of \$2,000,000 for the last half of this year.

### Navy Awards Contract

Washington, August 20.—The Navy Department today announced that a contract has been awarded to United Aircraft Corp., Pratt and Whitney Division, for \$380,609.06 for airplane engines and spare parts. The engines are to be used in scouting and observation planes now under construction by the Navy, under terms of the Vinson-Trammell Act.

### Casey Sells Out

Newark, August 23.—No further enrollments for the August and September classes in Aeronautical Engineering or Master Mechanics can be accepted at the Casey Jones School of Aeronautics at Newark. The school is filled to capacity and for the third consecutive year students can be admitted only to replace graduates. The next vacancies will be in November and December. The school, believed to be the largest of its kind in the world, has a student body of more than 500.

## S. E. C. LISTS JUNE EQUITY HOLDINGS

### John K. Northrop Decreases Douglas Holding by 1,900 Shares

Following is an official summary of transactions and holdings of officers, directors, and principal stockholders of corporations with equity securities registered, filed with the Securities and Exchange Commission July 11 to 31. Unless otherwise specified, transactions were made in June and holdings are as of the end of that month:

**Bellanca Aircraft Corp.**—A. Randolph Holladay, director, (Dec. 1936), bought and sold 200 common, holding none.

**Boeing Airplane Co.**—Fred P. Laudan, director, increased 78 common to 313 through exercise of rights.

**Douglas Aircraft Co.**—John J. Mitchell, director, sold 100 common in June, 1936, 200 in April, 1937, and 300 in June, leaving none. John K. Northrop, director, decreased common 1,900 to 1,800.

**Pan American Airways Corp.**—Graham B. Grosvenor, director, gave away 250, leaving 1,400.

Following is a tabulation of equity holdings filed by persons becoming officers, directors, or principal stockholders of issuers having any securities registered. Month covered by report is indicated in each case:

**Curtiss-Wright Corp.**—C. W. France, officer, none, Oct. 1936; Theodore F. Wright, officer, 10, Oct. 1936; Theodore F. Wright, officer, 100 Class A, Oct. 1936.

**Fairchild Aviation Corp.**—J. Miller Alchholz, director, none, Feb. 1937; William C. Franklin, director, 100, July 1936.

**United Air Lines Trans.**—John J. Mitchell, director, 800 common, July 1937.

**Western Air Express**—James O. New-ton, director, 100 common, July 1937; Ralph Waycott, director, 125, Nov. 1936.

## Boeing Has \$137,960 Profit In Quarter

A net profit of \$137,960 for the quarter ending June 30, 1937 has been reported by the Boeing Airplane Co. This is equal to 24 cents a share on 573,300 shares of \$5 par capital stock. The company showed a profit of \$115,937 equal to 22 cents a share on 521,882 shares in the preceding quarter and \$133,892 or 25 cents a share on 521,892 shares in the June quarter last year.

For the six months ended June 30, the company showed a net profit of \$253,897, or 44 cents a share on 573,300 shares, as against \$92,423 or 18 cents a share on 521,882 shares for the half year ended June 30, 1936.

Increased deliveries under various contracts by the company's subsidiaries have contributed greatly to the increased sales and net profits.

Boeing Aircraft Co., following negotiations with its employees' bargaining agency, granted pay increases effective July 1. How this will effect future operating results remains to be seen.

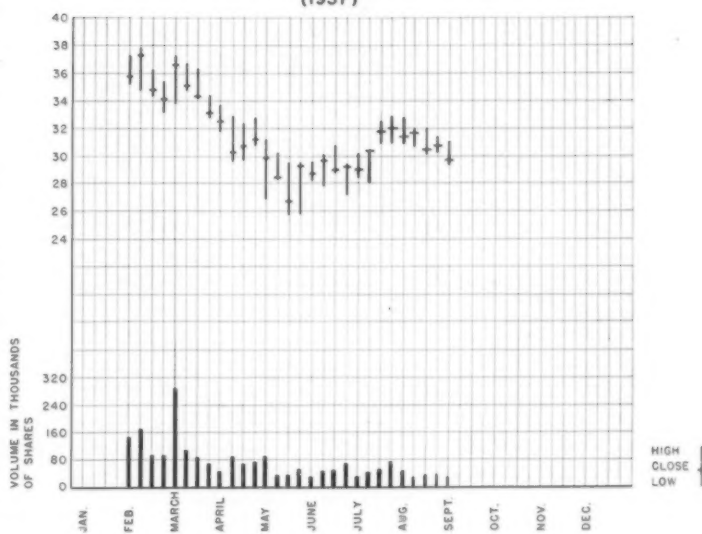
Statement for half year and for six months follows:

	First Half	Second Quarter
Sales, oper. rev. and other inc.	\$3,405,635	\$2,134,532
Cost of Sales and other deductions	3,047,804	1,941,953
Depreciation	59,105	29,774
Federal normal income tax	44,829	24,846
Net Profit	\$253,897	\$137,960

### Bellanca Net Earnings

G. M. Bellanca, president of Bellanca Aircraft Corp., said recently that the company is expected to have net earnings of about \$200,000 for the first six months of this year. These earnings would be the largest in the company's history. Included in them will be profits from an order for 20 mail planes for delivery abroad.

## WEEKLY AVIATION AVERAGES (1937)



DATA SUPPLIED BY WYCKOFF ASSOCIATES, INC.  
CHART AND COMMENTS BY PHILIP P. FRIEDLANDER

### Line Chart Figures Furnished by Wyckoff Associates, Inc., Chart and Comments by Philip P. Friedlander

The old adage, "History repeats itself" is of especial significance in the stock market today. Certain stocks and certain groups establish a position in the market that time and time again foretell the future market trend, either up or down. During the last six months, the Aviation Group has been the first selection of equities to warn of market break coming, or to predict of a new market upturn.

During March, the Aviation Averages plainly indicated that it was going lower—with a tremendous increase in volume and a failure to penetrate its old high—and not long after this the general market performed in a like manner. Now in August, even while the general run of stocks were acting well, and, in some cases, going into new high ground, supply showed up in this group. Aviation stocks started edging down against a general bullish trend and atmosphere. This column, hesitatingly called attention to the possibility that the Aviation Averages could react to the 29-28 level.

Right at this moment the Aviation Averages are slightly under 28, and one must concede the possibility of

27 for the low point of this move. It is our feeling that the individual aviation stocks can be purchased somewhere around these levels, or slightly under, for at least a trading turn.

Once support is established, the Aviation stocks will "back and fill" to establish a broad line for a move forward later on. Alert traders can use this maneuver for several good market turns.

It is a peculiar thing that the volume studies of the Aviation Averages as well as the Dow Jones various Averages, have given little help in determining the trend. During the last few weeks, the volume in the Aviation Averages has fluctuated from thirty-five thousand to thirty-one thousand, hardly enough activity to decipher a real meaning. The feature of this move downward has been the lightness in volume. It was the same story on the rally.

It will be interesting to note whether the Aviation Averages will have the same forecasting value for the general market trend as it has had earlier in the year.

## LEADING AVIATION STOCKS

New York Stock Exchange									
Week Ending August 14					Week Ending August 21				
	High	Low	Net Change	Sales	High	Low	Change	Sales	
Aviation Cp. of Del.	7	6½	— ½	7,400	6½	6½	— ¼	5,900	
Bendix Aviation	21	20	— 1	6,200	21½	19½	— 1¼	8,900	
Boeing Airplane	36½	34½	— 1½	10,200	36	32½	— 2¾	16,900	
Consolidated Aircraft	23¼	21½	— 1¾	1,900	23½	21½	— 1½	1,500	
Curtiss-Wright	6	5¾	— ¼	15,900	6	5½	— ½	17,700	
Curtiss-Wright A	20½	19½	— 1	5,800	20½	19	— 1½	5,200	
Douglas Aircraft	58½	56½	— 1½	7,800	58½	54¾	— 2¾	6,600	
Glenn L. Martin	23½	23	— ½	4,800	23½	21	— 1½	300	
Natl. Aviation Corp.	12½	12¼	— ¼	700	12½	12	— ½	1,800	
N. American Aviation	12	11¼	— ¾	11,600					
Sperry Gyroscope	18½	18	— ½	7,000	18½	17½	— 1	7,100	
Thompson Products	28½	26½	— 1½	1,700	28½	26	— 1¼	1,700	
TWA	14¾	14¾	— ½	1,300	14¾	12¾	— 1	6,900	
United Aircraft	30	28½	— 1½	14,700	16	14½	— ½	8,300	
United Air Lines	16½	15½	— 1	6,700	29½	27¾	— 1½	11,300	

New York Curb Exchange									
Week Ending August 14					Week Ending August 21				
	High	Low	Net Change	Sales	High	Low	Change	Sales	
Aero Supply	4	4	— ½	300	4	3¾	— ¼	2,900	
American Airlines	25	23	— 2	1,000	23½	22½	— 1	500	
Beech Aircraft	3	2½	— ½	200		Not listed			
Bell Aircraft	16½	15½	— 1	400	15½	15	— ½	400	
Bellanca Aircraft	6½	5¾	— ½	1,000	6¾	6	— ¾	2,400	
Breeze Corp.	10	9½	— ½	900	9½	9	— ½	500	
Fairchild Aviation	5½	4½	— 1	3,700	5½	4¾	— ¾	2,100	
Irving Chute Co.	12½	11½	— 1	400	11½	11½	— ½	200	
Lockheed Air	13½	13	— ½	5,400	13½	12¾	— ½	2,800	
Pan American Air	65½	65	— ½	500	65½	64¼	— 1¼	800	
Seversky Aircraft	3½	3¾	— ½	1,700	3½	3½	— ¼	2,600	

# Congratulations Pan American



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